

**BANDED STILT *CLADORHYNCHUS LEUCOCEPHALUS*  
RESEARCH IN WESTERN AUSTRALIA IN 1995**



**LEG-BANDING AND LEG-FLAGGING ACTIVITY  
AT LAKES BALLARD & MARMION IN 1995**

**RESEARCH MATERIALS CONSOLIDATION REPORT**

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**Cover photo:** Banded Stilt chick (held by Alan Clarke) being flagged on left leg and banded on right, on Lake Ballard on 30<sup>th</sup> April 1995. © JAK Lane.

This **Research Materials Consolidation Report** is a preliminary stage in the preparation of research reports and publications relating to the Banded Stilt breeding event on Lakes Ballard and Marmion in Western Australia in 1995.

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

## FUTURE WORK

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

- Check through this RMCR for geographic coordinates of any localities involved in the BaSt banding and flagging work on Lakes Ballard and Marmion in 1995. Annotate Google Earth images of Ballard and Marmion with these locations and their coordinates.
- Ask Grant Pearson (GBP) to sign a letter to ABBBS authorising JL to access all ABBBS data/records relating to the banding and flagging work that GBP, JL and CDTM did on Lakes Ballard and Marmion in 1995, all of which was done under permits, bands and flags issued under GBP's 'A' Class Banding Authority (though GBP had requested that these be issued under JL's 'A' Class Banding Authority).
- Ask ABBBS for copies of any records they have of Banded Stilt banding and flagging activities (particularly any banding or flagging 'returns' sent to ABBBS by GBP) on Lakes Ballard and Marmion in 1995. Note that 'Ballard' might be misspelled as 'Bollard' in parts of the ABBBS database.
- Check the accuracy of the geographic coordinates of Banded Stilt records (of 1995 banding & flagging in WA) in the ABBBS database.
- Ask Andy Chapman (ACh) for copies of his field notes from the banding and flagging trips on which he accompanied JL & ACI (Ballard, April-May 1995) and GBP & ACI (Marmion, June 1995).
- Search 'The Tattler' (and 'The Stilt') 1995 onwards, for any articles relating to the 1995 BaSt leg-flagging and banding work (and the breeding event more generally) (Done by searching internet in January 2014 by JL, but not all issues are online (yet) and maybe a few relevant articles are yet to be discovered).
- See yellow highlighted text in the remainder of this RMCR summary for other Future Work needed / desirable.

## Photographs

Thumbnail prints of photos taken by JL, GBP & ACh during banding and flagging activities on Lakes Ballard and Marmion in 1995 are included in this RMCR. The 'hardcopy' photos (all 35mm colour transparencies?) are held by JL. The scanned (digital) copies of these are on JL's office computer and backups. CDTM might have taken photos of the 10 BaSt chicks that he banded and flagged.

## Field Notes

A separate RMCR of 1995 Field Notes has been prepared containing copies of all the Field Notes made by J Lane (JL), G Pearson (GBP), A Clarke (ACI) and A Chapman (ACh) in 1995 while undertaking collaborative research with C Minton (CDTM) on Banded Stilts in Western Australia. For convenience, the field notes by JL while banding and flagging on Lake Ballard in April-May 1995 and those by GBP while banding and flagging on Lake Marmion in June 1995 have also been reproduced 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 many faxes and emails between JL and GBP listed below.

This RMCR contains:

1. Table (prepared by JL in Feb 2014) summarising leg-band numbers and dates and places of use on Banded Stilt at Lakes Ballard and Marmion in 1995. The data in this Table is derived from the field notebooks of JL and GBP and summary notes faxed by CDTM to JL on 24/04/1995 (see below). Did GBP submit banding records to ABBBS? Ask ABBBS.
2. Table (prepared by JL in Feb 2014) summarising numbers of leg-flags and dates and places of use on Banded Stilt at Lakes Ballard and Marmion in 1995. The data in this Table is derived from reports (GBP only); field notebooks (JL and GBP); summary notes (faxed by CDTM to JL on 24/04/1995) and records of phone conversations (see below for all). There are inconsistencies in some of these figures. Did GBP submit flagging records to ABBBS? There are no copies among his papers (searched by JL in Jan-Feb 2014). Ask ABBBS. Did CDTM? (see 06/10/2000).
3. Tally sheet for ‘Banded Stilt banded and/or flagged on Lakes Ballard & Marmion in 1995’. This Tally Sheet was prepared by JL on 01/02/2014 and is based solely on the data in the Excel spreadsheet below (headed ‘Banded Stilt banded and/or flagged on Lakes Ballard & Marmion in 1995’).
4. Printout (01/02/2014) of Excel spreadsheet ‘Banded Stilt banded and/or flagged on Lakes Ballard & Marmion in 1995’ prepared by JL in late Jan – early Feb 2014. The data in it is derived solely from relevant sections of the field notebooks of JL and GBP and summary notes provided faxed to JL by CDTM on 24/04/1995 (see elsewhere in this RMCR for all of these). Note that the data JL has derived from GBP’s field notebooks does not match the totals in GBP’s report of 17/06/1995. Did GBP submit numbers to ABBBS? Ask ABBBS.
5. ‘Print Screens’ and a ‘copy-paste’ of the results of an enquiry made by JL (on 03/02/2014) of Banded Stilt band recoveries as available on-line from the Australian Bird Study Association website. Only 2 records were available. A Longevity record of 11 years 3 months and a Distance Travelled record of 1182 km. The reference for these was Corella 36(4):104, a copy of which is attached. Note that this was a year 2012 issue of ‘Corella’. Check all issues of ‘Corella’ from 1995 to 2014 for other recoveries (& sightings?) of BaSt chicks banded and/or flagged at Lakes Ballard and Marmion in 1995.
6. Results of an online search (18/01/2014) by JL of the ABBBS Database for Banded Stilt banding and recovery summary data. Seek details of all records held by ABBBS of BaSt chicks leg-flagged and/or banded at Lakes Ballard & Marmion in 1995.
7. Copy of Standen, R. (2012) *Banded Stilt in central WA, May/June 2012*. Journal of the Victorian Wader Study Group, Bulletin No. 35, pp.58-60. On page 60 there is a Table showing the leg flag ‘schema’ used on Banded Stilt in Australia from 1995 onwards. The first entry is ‘A single yellow flag on the upper right leg was flagged as a chick in 1995 at Lake Ballard in WA. Several of these were seen at Lake Eyre in 2000 and one at Lake George in April 2001’. Note that, in reality, only 10 BaSt chicks at Ballard in 1995 were flagged on the right leg, while the rest (154) were (correctly) flagged on the left. At Lake Marmion in 1995, approx. 200 were flagged on the right leg and an uncertain number (>100) were flagged on the left.
8. Extracts from Minton, CDT (2005). *What have we learned from banding and flagging waders in Australia?* Pages 116-142 in ‘Status and Conservation of Shorebirds in the East

Asian-Australasian Flyway' – Proceedings of the Australasian Shorebirds Conference 13-15 Dec 2003, Canberra. (Edited by Phil Straw) Refers to banding of '850' Banded Stilt at 'Lake Ballard' by CALM in 1995. Flagging of BaSt at Lake Ballard and Banding / flagging of BaSt at Lake Marmion not referred to. This suggests these data had (have) not been sent to ABBBS (or CDTM).

9. Email (06/10/2000) from CDTM to GBP in which he writes, inter alia, 'I want to put them [recent leg-flag sightings at Lake Eyre] into the system for processing by ABBBS but I do not have the banding details. Could you tell me please (A) the range of dates during which the leg flagging took place; (B) approx coordinates of the part of the lake [sic] where most leg flagging took place; (C) exactly how many BS [BaSt] were flagged, and (D) whether the formal field data sheets returns were made to the Banding Office [ABBBS]'. GBP annotated the email hardcopy with 'colony: 29 44 36 S, 121 29 13 E' and 'camp: 29 47 01 S, 121 33 06'. These are coordinates of locations on Lake Marmion. See them plotted (by JL on 31/10/2014) on the accompanying Google Earth image. These are identical to the coordinates in GBP's typed report of 17/06/1995 (faxed to JL on 19/06/1995).
10. 'Report of Recovery to Bander' (dated 14/09/2000) sent by ABBBS to 'The Australian Wader Study Group, c/- CDTM' and copied by ABBBS to GBP. This reports a leg-flag sighting at Hughes Island, Lake Eyre North SA, on 03/04/2000. Note that banding details are given as 'Lake Bollard [sic; should be 'Ballard'] WA' 'on 00/04/1995'. Curious that this letter was sent to CDTM and copied to GBP, given that the flagging was done under GBP's permit. When asking ABBBS for banding or flagging records, keep in mind that 'Ballard' was misspelt as 'Bollard' in part of their database.
11. Email (13/04/2000) from CDTM to GBP and 'Allan' [Alan Clarke - ACI] inter alia indicating that Alan sent CDTM metal bands and yellow leg flags for potential use at Lake Eyre, but it turned out that they were unable to be used there. CDTM asks whether he should return them 'immediately' to GBP / Alan or hold onto them for a few weeks. Were they returned to GBP or ACI? (Presumably they were not, as JL searched band stocks in laboratory at Busselton office on 01/02/2014 and found neither leg-bands nor leg-flags for BaSt). [Note by JL on 03/02/2014. Double-check for leg-flags, possibly among duck nasal saddles or egret/heron/ibis wing tags?]
12. Faxed (on Fri 17/03/2000; from JL to GBP) copies of a Budget Request and a Science Project Plan for SPP 'Breeding ecology and conservation of Banded Stilt'. The Science Project Plan refers inter alia to 'Leg banding and flagging of chicks on Lakes Ballard and Marmion' in 'Jun 1995' and (under 'Phase 1 (1995-2000)'), 'Develop safe method of catching chicks. Band / leg flag chicks'.
13. Undated (approx. early May 1999) ABBBS 'Requisition for Banding Supplies' form in which GBP requests 1000 size 08, 'metal SS' leg bands be issued to him ('A' Class Authority No. 831). GBP also wrote 'URGENT: NEEDED BY 10 MAY 99' on this form.
14. Article 'Leg-Flagged Banded Stilts' (including sightings received by JL to date) as appeared on pp.16-17 of WA Bird Notes No.80, Dec 1996. Draft is below (at 23/10/1996). This article inter alia reads: '... **500 Banded Stilt chicks were leg flagged and 800 banded ...**'. [JL 03/02/2014: These rounded figures were based on material ready to hand at the time and the number flagged now appears to possibly be quite inaccurate, due to uncertainties about the number flagged at Lake Marmion].  
Note that a different article with the same heading, with authorship of JL not acknowledged, appeared (page 18) in the March 1996 issue of WA Bird Notes (No.77).
15. Fax (23/10/1996) from JL to John Blyth with typescript of article 'Leg-Flagged Banded Stilts' (including sightings received by JL to date) for December 1996 issue of WA Bird Notes. Inter alia it states that the final numbers banded and flagged at Lakes Ballard and

Marmion in 1995 were **500 leg-flagged and 800 leg-banded**. [JL 03/02/2014: These rounded figures were based on material ready to hand at the time and the number flagged now appears to possibly be quite inaccurate, due to uncertainties about the number flagged at Lake Marmion].

16. Fax (14/10/1996) from CDTM to JL that reads, *inter alia*, ‘Re slides [35mm photos]. I don’t think I need the banding ones’ [for a BaSt presentation CDTM was to give in New Zealand ‘next week’]. Perhaps CDTM took some photos while banding and flagging 10 BaSt chicks on his own on Lake Ballard on 13/04/1995?
17. Program and Abstract of presentation titled ‘Banded Stilt Breeding at Lake Ballard, Western Australia’ by JL, GBP & CDTM (presented by JL) at SHOC in Albany, WA, on 07/10/1996. The presentation included information about BaSt leg-banding and leg-flagging activities at Lake Ballard (and Lake Marmion) by the authors in 1995.
18. A Table providing details of the five BaSt leg-flag sightings shown in a map presented by JL at the ‘Southern Hemisphere Ornithological Conference’ in Albany, WA, on 07/10/1996. This Table, which was not included in the presentation, indicates that **500 BaSt chicks were flagged and 800 chicks were banded** in 1995 (at Lakes Ballard and Marmion). [JL 03/02/2014: These rounded figures were based on material ready to hand at the time and the number flagged now appears to possibly be quite inaccurate, due to uncertainties about the number flagged at Lake Marmion].
19. List of slides (photos) used in Banded Stilt talks given by JL to the SHOC at Albany on 07/10/1996 and the RAOU WA Group in Perth on 25(?)09/1996. Eleven of these photos were of BaSt leg-banding and leg-flagging activities by JL & ACI on Lake Ballard in late April – early May 1995.
20. ‘Rough jottings [by JL] made in preparation for talk at the ‘Sthn. Hem. Orn. Congress’ to be held in Albany on 07/10/1996. Includes calculations of numbers of BaSt chicks banded and flagged at Lakes Ballard and Marmion in 1995. Note: scanned over two pages due to length.

These calculations seem to indicate:

- 490 incoloy leg-bands of size 8 were initially issued by ABBBS and another 200 were subsequently issued. If correct, a total of 690 leg-bands were issued for use at Ballard & Marmion in 1995.
- Some uncertainty about the number of chicks that were banded and/or flagged. These calculations were incomplete. Work on these calculations.

21. Fax (05/08/1996) from JL to CDTM with draft abstract (‘Any changes desired?’) for presentation titled ‘Banded Stilt Breeding at Lake Ballard, Western Australia’ by JL, GBP & CDTM, to be presented by JL at SHOC in Albany, WA, on 07/10/1996. The presentation would include information about BaSt leg-banding and leg-flagging activities at Lake Ballard (and Lake Marmion) by the authors in 1995. Finalised abstract, as submitted, is also here.
22. Hardcopy (16/05/1996) of document ‘Banded Stilt *Cladorhynchus leucocephalus* Seminar’ ‘... compiled [by JL] 14-16 May 1996 in preparation for seminar at Woodvale [CALM’s Wildlife Research Centre] on Fri 17 May [1996]. Words and sentences relating to banding and flagging, including numbers banded/flagged, have been highlighted in green (by JL on 29/01/2014). Reference made to ‘500 flags made by VWSG (Mark Barter) [actually Mark Barter, since deceased].
23. ‘Banding Round-Up: A complete list 1992-1996’, compiled by E.B. Dettmann of ABBBS. It is ‘A revised list of recoveries of Australian-banded waders over 100km from the banding place, between January 1992 and February 1996 ...’. It contained no records of Banded Stilt recoveries. JL searched on-line for more-recent lists such as these but

was unsuccessful. Consider having a look through more-recent hard copies of Corella when next at DPaW library in Kensington.

24. Article titled 'Leg-flagged Banded Stilts' on p.18 of WA Bird Notes, No.77, March 1996. Reports recent leg-flagging activity and requests sighting to be reported to GBP. Doesn't list any sightings to date. First paragraph reads 'In April-May [1995] 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'. Also: 'The bands and flags were placed above the 'knee' and are most visible when the birds are foraging'. Author not shown. Last sentence says please send records to Grant Pearson.  

Note that a different article with the same heading, with authorship by JL, appeared in the Dec 1996 issue of WA Bird Notes (No.80). That article did list leg-flag sightings to date.
25. Fax (11/09/1995) from JL to Barry Baker at ANCA [ABBBS]. It reads 'My apologies for your letter of 13/8/95 to Grant Pearson re banding projects not having been replied to yet. We have a heavy field work load [e.g. SW wetland monitoring] at the moment and it will be approx 3 weeks before a reply can be prepared'.
26. Article on pp.16-17 of WA Bird Notes, No.76, December 1995, titled 'Banded Stilts Complete the Job', authored by 'Clive Minton, Jim Lane and Grant Pearson' and reprinted from 'The Tattler' No.4, July 1995. Inter alia it reads 'Banding and colour-flagging of chicks went very well, with **nearly 1000 birds marked**'. A 'precautionary procedure' adopted for catching chicks is then described.
27. Article titled 'Update on Banded Stilt Breeding event' by Clive Minton, Jim Lane and Grant Pearson, p.9 in Sept 1995 issue of Wingspan, that inter alia reads 'Banding and colour-flagging of chicks went very well, with **nearly 1000 birds marked**'. A 'precautionary procedure' adopted for catching chicks is then described.
28. Fax (23/08/1995) from JL to GBP with memorandum headed 'Banded Stilt Monitoring' that reads '[the recent] 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 ...'.
29. JL's copy of GBP's fax (18/08/1995) to JL. JL has annotated the 13/08/1995 letter from Barry Baker, including with 'Grant. Which projects?'
30. GBP's copy of his fax (18/08/1995) to JL. Cover page reads 'Just some brief comments [needed] on objectives, discussion & continuance of project pls'. Second page is copy of Barry Baker's letter of 13/08/1995 to GBP.
31. Fax (18/08/1995) from GBP to Melinda Maher at ABBBS saying 'Many thanks for the bands. We may have to return the last 280 if there is no further activity'. Next two pages of fax are copies of two 'Receipt of Bands' forms.  

One (signed on 18/08/1995 by GBP) was for receipt of **280** 'Size 08', 'Metal SS' leg-bands with 'Prefix 082' and 'Serial Numbers 95721 to 96000', issued on 07/06/1995. **This was the 3<sup>rd</sup> batch of bands received.** [JL 04/02/1995: None of these bands was used in 1995. It would seem that they were not received in time for the last banding & flagging effort of 1995, which was at Lake Marmion on 11-12/06/1995.

The other was a copy of the form (signed on 01/06/1995 by GBP) for receipt of **200** 'Size 08', 'Metal SS' leg-bands with 'Prefix 082' and 'Serial Numbers 95501 to 95700', issued on 17/05/1995. **This was the 2<sup>nd</sup> batch of bands received.** [All of these bands were used on 11/06/1995 at Lake Marmion].

GBP's original (pink) copy of the form he signed on 18/08/1995 is also here.
32. Letter (17/08/1995) from GBP replying to Barry Baker's (ABBBS) letter of 13/08/1995 (below). Inter alia reads: 'My guess is the project has probably been completed. However

it is not known whether there is still activity at the Lake Ballard or the Lake Marmion colony and an aerial survey [by ACh] on 21 August will confirm this. [When we have his report] I will complete the relevant details for you and forward then to your office'.

33. Letter (13/08/1995) from Barry Baker (Executive Officer of ABBBS) to GBP referring to a letter of 12/05/1995 '... in which you were requested to advise whether you wished to continue any of your banding projects in 1994/95 [or did he mean 1995/96?] and to provide reports on your projects' BB was still awaiting a response and report/s. 'Details of previously approved projects are again attached'.
34. Article titled 'Banded Stilts Complete the Job' (p.3 in 'The Tattler No.4, July 1995) authored by 'Clive Minton, Jim Lane and Grant Pearson'. Inter alia it reads 'Banding and colour-flagging of chicks went very well, with **nearly 1000 birds marked**'. A 'precautionary procedure' adopted for catching chicks is then described. Note that this article was re-printed on pp.16-17 of WA Bird Notes, No.76, December 1995.
35. Faxes (18/07/1995) from JL to Phil Straw (RAOU Sydney) and Kate Gorringe-Smith (RAOU Melbourne) with finalised typescript headed 'Follow-up note for 'Wingspan' and 'Tattler' as written by [CDTM], with a few amendments by JL (18/7/1995)' and two suggested titles: 'Banded Stilts Complete the Job' or 'Banded Stilts Did It!!' Inter alia it reads 'Banding and colour-flagging of chicks went very well, with **nearly 1000 birds marked**'. A 'precautionary procedure' adopted for catching chicks is then described. This article was published in the Sept 1995 issue of Wingspan (see above) under the title 'Update on Banded Stilt Breeding event' and on pp.16-17 of WA Bird Notes, No.76, December 1995, titled 'Banded Stilts Complete the Job' (re-printed from 'The Tattler' No.4, July 1995).
36. Fax (14/07/1995) from CDTM to JL with handwritten draft of article with suggested alternative titles 'Banded Stilts Complete the Job' or 'Banded Stilts Did It!!' See JL's fax above (18/07/1995) to P Straw and K Gorringe for typed version and relevance to this RMCR.
37. Faxes (both 13/07/1995) between JL and CDTM discussing possibility of 'presenting a paper on the Banded Stilt work' to SHOC in Albany, WA, on 5<sup>th</sup>-9<sup>th</sup> Oct 1996. The presentation would include information about BaSt leg-banding and leg-flagging activities at Lakes Ballard and Marmion by the authors in 1995 and subsequent band/flag sightings.
38. Undated map of Lake Ballard, with annotations in AC1's handwriting. The following locations are marked: 'Crossover Lake (Fresh)', 'Camp Island', 'BaSt No.1 Breeding Colony', 'No.2 BaSt Breeding Colony' and 'Tripod Island'. The map is also annotated with 'Dist. between Tripod [Island] and Camp [Island] [is] 16km. Most birds [were] taken between the two islands. Check GBP's notes'. This annotation must refer to the adult BaSt and chicks that were collected (not banded/flagged) by GBP & AC1 (see another RMCR, yet to be prepared, for details of the BaSt collecting that was done). 'Tripod Island' is a name conferred by JL on an island that he and AC1 used to search for BaSt chicks from (for banding & flagging), using a telescope and tripod. From memory (JL, 31/01/2014) this was about as far west as they could go in their punts. It was too shallow to operate the punts further west.
39. Photos (4 pages of 'thumbnail prints'), mainly taken by GBP and probably all with his camera, of BaSt banding & flagging activities at Lake Marmion on 11<sup>th</sup> & 12<sup>th</sup> June 1995. Also photos (one page; photos supplied to JL by Ian Kealley) that were presumably taken by ACh, in which case they must have been taken on 11/06/1995 (not 12/06/1995) at Lake Marmion.

Note that JL also has other photos taken at Lake Marmion in 1995, but not of banding and flagging activities (see another RMCR, yet to be prepared, for these photos).

40. Faxed (19/06/1995) copy of 17/06/1995 report by GBP for JL, headed 'Report on Survey to Lake Ballard and Lake Marmion 8 June 1995 to 13 June 1995'. Inter alia reads 'A Chapman [ACh] had flown the lakes and reported no flightless [BaSt] chicks remained on [Lake] Ballard but young chicks found at [Lake] Marmion'. Report says GBP, ACI & ACh **banded 200** BaSt chicks on left tibia and **flagged 195** chicks on right tibia on Lake Marmion on 11/06/1995, and GBP & ACI **flagged an unspecified number** of BaST chicks there on 12/06/1995. An annotation by GBP reads '**Total flagged 195 + 260 + 20 = 475**'. How did GBP arrive at these numbers?. Compare with JL's tallying (01/02/2014) of numbers in GBP's field notebook, indicating 200 were banded+flagged and 13 were flagged but not banded on 11/06/1995 and 158 were flagged but not banded on 12/06/1995. Did GBP submit numbers to ABBBS? Ask ABBBS An un-faxed copy of this report, with GBP's work hours annotated at the end, accompanies the faxed copy. Note that the 'colony' and 'camp' coordinates referred to in this report (last page) by GBP refer to Lake Marmion and JL has plotted them (in 2014) on a Google Earth image at 06/10/2000 in this RMCR.

41. Photocopies of pages of GBP's field notebook covering his (with ACI and ACh) 8-13 June 1995 trip to Lakes Ballard and Marmion, during which they banded and leg-flagged BaSt chicks on Lake Marmion only (on 11-12/06/1995). These field notes include (understandably) details of adults, chicks, techniques, etc., that are not in GBP's subsequent report (17/06/1995) on this trip.

42. Notes made by JL that appear to record information GBP communicated to JL by radio telephone on Sun 11/06/1995 at 5.50pm. Inter alia these notes read 'have **used the 200 leg bands**' [which would indicate they only had 200 bands to use] and '220 done today (removed flags from 20!) therefore 200 to date' and 'have **200 flagged**' [contrast with GBP's typed report of 17/06/1995 above which indicates 195 flagged on 11/06, and with JL's tallying (01/02/2014) of numbers in GBP's field notebook, indicating 200 were banded+flagged and 13 were flagged but not banded on 11/06/1995. Perhaps GBP was giving JL approximate figures by phone]. There is also mention of chick ages and catching methodology in these notes. E.g. 'Drive to creche with Argo – chase 20-30 and take back to boat [to band/flag]'. 'Creches c.30. Try to get all then release [after banding/flagging] – adults coming back'.

43. Fax (07/06/1995) from JL to GBP with a four-page 'Revised Program Lake Ballard June 1995' with instructions for GBP, ACh and ACI regarding survey and other work to be undertaken at Lake Ballard and Lake Marmion from Thurs 8<sup>th</sup> to Wed 14<sup>th</sup> June 1995. Inter alia the program refers to: 'leg flag glue'; 'I have mailed Australia Post to you [from Busselton, to Woodvale] a bag of leg flags ...', and 'Band and flag flightless chicks [at Lake Marmion from Sun 11/06 onwards]'. There is also a detailed description of the catching, banding & flagging methodology to be followed, including:

- **'band on right tibia** (i.e. above 'knee') and **flag on left tibia** every chick';
- 'remove any miss-applied bands (special pliers) and flags (separate 'wings' with knife)';
- 'if you run out of bands (unlikely), continue with flags only';
- 'record band numbers of chicks in same brood (where identifiable) and band numbers used each day'.

See JL's fax of 02/06/1995 below to CDTM for the 'draft work program'.

44. Fax (05/06/1995; typed 01/06/1995) message from Mark Lamble, ABC Natural History Unit, to JL with a 'rough diary' of observations he made while at Lake Ballard from 09/05 to 17/05/1995. Note that they encountered a BaSt chick with a leg band on 10/05/1995 '... about 3kms north west of Camp Island at approximately 2pm. ML regrets they did not manage to record the band number. A map of where the stilt chicks were is attached (and where they camped and the vehicular route to it). JL faxed a copy of this fax to CDTM on 06/06/1995.

45. Fax (02/06/1995) from CDTM to JL with suggestions on draft works program that JL had sent him on same date. (see below). Inter alia CDTM wrote: 'page 4. I thought band was on left tibia and flag on right tibia. But I may have been wrong. Please re-check your official permission (& note I may have done it wrongly)'. 'page 4. I presume you are recording band numbers put on members of same brood (where identifiable). If not, then I think we should try to'.

46. Fax (02/06/1995) from JL to CDTM (also sent to GBP) with: 'draft work program for Grant [GBP] and co. to work to next week. I ... would appreciate any comments'. The draft program includes a detailed description of the catching, banding & flagging methodology to be followed, including 'band on right tibia (i.e. above 'knee') and flag on left tibia every chick'. Note that there are two copies of the draft program here – one with subsequent annotations by JL and one without. See JL's fax of 07/06/1995 above to GBP for 'Revised Program'.

47. Article in WA Bird Notes (No.74, p.19 – June 1995 issue, author 'Jim Lane') headed 'STOP PRESS Leg-flagged Banded Stilts' inter alia stating 'During the first week of May [1995], Alan Clarke, Andy Chapman and I **leg-flagged 170 chicks** at various stages of growth. The leg-flags are small, made of stiff yellow plastic and located above the left 'knee' (on the tibia)'. This article is a restructured and slightly reworded version of JL's draft of 16/05/1995 (see below).

48. A copy of 'History in the mating: Banded Stilts do it again!' by 'Clive Minton, Grant Pearson and Jim Lane' (pp.13-15 in Wingspan, June 1995) indicates inter alia an intention 'at the time of writing (late April)' to conduct 'banding/colour leg-flagging of the [BaSt] chicks'.

49. Undated page of jottings by JL headed 'Next Ballard Trip (6/95) [June 1995]' that records some preliminary thoughts of JL about the trip to be undertaken to Lake Ballard (and Lake Marmion) by GBP, ACI & ACh in June 1995. Inter alia reads 'I have [leg] flags'. See faxes above for draft (02/06/1995) and revised (07/06/1995) programs.

50. Two pages of jottings by JL that appear to record several phone conversations with Jeremy Hogarth (ABC Natural History Unit) and Clive Minton (CDTM) in May 1995 and perhaps very early June 1995. 'Message from Jeremy Hogarth Th 18/5/95 at 1310 hrs' inter alia refers to '[ABC crew of Mark Lamble and Campbell Miller] caught one banded chick – didn't get number but did record date, time, location'. JL's discussion with CDTM includes 'flag without bands' [does this mean there was a shortage of leg-bands?] and what appears to be 'Aluminium bands' [does this mean that CDTM / JL discussed possibly using aluminium bands if ran out of incoloy bands?].

51. 'Receipt of Bands' form, issued on 17/05/1995 and signed by GBP on 01/06/1995, for issue & receipt of 200 'Size 08', 'Metal SS' leg-bands with 'Prefix 082' and 'Serial Numbers 95501 to 95700'. All of these bands were subsequently used – on 11/06/1995 at Lake Marmion. This form also records issue & receipt of one pair of small banding pliers.

52. Fax (16/05/1995) from GBP to Belinda Dettman [ABBBS]. On cover page GBP writes: 'We need about 500 bands – 490 would be fine'. Strange coincidence that 490 was also the number issued back on 23/03/1995 and GBP requested two pairs of small banding pliers on both occasions. GBP's handwriting in both 'Requisition for Banding Supplies' forms (16/5 & 23/3) is slightly different, indicating that the latter is not a photocopy of the former).

Note that both forms requested bands in 'SS' metal, i.e. stainless steel. Presumably GBP meant incoloy (see JL's fax of 16/05/1995z) and presumably that was what was subsequently supplied (check) by ABBBS. Incoloy is a type of stainless steel.

'Incoloy® 27-7MO is an advanced super-austenitic stainless steel containing over 7% molybdenum'. 'Excellent resistance in ... seawater, brine and high chloride environments along

*with higher strengths compared to traditional 6% molybdenum alloys makes the alloy attractive in oil & gas applications*'. <http://www.corrosionmaterials.com/documents/dataSheet/alloyIncoloy27-7M0DataSheet.pdf> (downloaded 06/02/2014 by JL).

53. Fax (16/05/1995) from JL (at Busselton) to GBP (at Woodvale) that reads: 'Plse order another 500 size 8 incoloy leg bands for a possible BaSt banding / flagging effort in a few weeks time'. Note that only 490 leg-bands were issued initially (see 23/03/1995), not 500 as this fax by JL could suggest.
54. Fax (16/05/1995) from JL to John Blyth (editor of WA Bird Notes) with hand-written article titled 'Leg-flagged Banded Stilt' for publication in WA Bird Notes. This article inter alia reads: During the first week of May [1995], Alan Clarke and I [JL] leg-flagged 170 (one hundred and seventy) [BaSt] chicks at various stages of growth' and 'The leg flags are small, made of stiff yellow plastic and located above the left 'knee', i.e. on the tibia'. This was also faxed to CDTM, on 30/05/1995, with a cover note that reads: 'Accompanying is the article that will appear in the June issue of 'WA Bird Notes''. See (above) the 'STOP PRESS article on p.19 of WABN No.74 (June 1995) is a restructured and slightly reworded version of this draft.
55. Photos (thumb-prints) of BaSt leg-banding and leg-flagging activities by JL & ACl with ACh on Lake Ballard in late April – early May 1995. See JL's work PC (and backups) for these photos in digital format (scanned from 35mm colour transparencies, i.e. slide film).
56. Photocopies of pages of JL's field notebook covering BaSt chick banding and flagging activity on Lake Ballard during late April – early May 1995 trip with ACl and ACh. For field notes of the entire trip, see the RMCR of all 1995 field notes. JL did not prepare a report on this trip, as these field notes were sufficiently comprehensive. See the Tables at the beginning of this RMCR for details of bands and flags applied each day. For other data and observations concerning the banding / flagging activity and the banded / flagged BaSt chicks, read these field notes.
57. First three pages of 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!'. Inter alia this fax indicates that on 12/04/1995 12 BaSt chicks were 'caught & released [by CDTM] as they left the colony before reaching water i.e. just left nest'. These chicks were weighed but not banded.

In addition, **10 chicks were 'caught & banded** some 1 km [the large space between 1 and km seems to indicate a range was written]. These 10 chicks (in 4 broods) were also weighed and had bill lengths measured.

**Their band numbers were recorded as '11' – '20'.** The bands issued by ABBBS to GBP on 23/03/1995 (see below) had 'Serial Numbers' 95011 to 95500, with 'Prefix 082'. So the bands that CDTM was referring to here were **bands (082) 95011 to 95020**.

They were caught and **banded on 13/04/1995** '(probably 0-2 days after leaving nest)' [2 is very faint – maybe 3?].

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

58. JL's recordings (notes) of phone conversation with CDTM in April 1995, after CDTM had left Lake Ballard for Broome. Inter alia, while at Lake Ballard in April 2013, CDTM '**banded [and leg-flagged] 10 chicks** (4 families) on water' [methodology described in detail]; 'do 20-40 per day near colony if can't corral'; '7-7.5mm on 'knee'' [presumably checking suitability of leg-band size]; 'did 10 in 2 hours'; 'Flag on right tibia (of the bird band on left' and 'Equipment [was left by CDTM] at Jeedamya [pastoral station]'. Note that the BaSt chicks were to have been banded on the right tibia and flagged on the left, not the other way around. See faxes of 30/5, 02/6 & 07/6/1995 above and article in

WA Bird Notes June 1995 issue (No.74, p.19) and letter of 23/03/1995 below from ABBBS to GBP.

59. Undated page of handwritten notes by GBP for JL that read, inter alia, Clive [CDTM] was asked to leave the following with John & Cath Finlayson at Jeedamya [pastoral station] (1) Leg bands – in a shoulder bag marked BANDS'. CDTM did; see his note below of 15/04/1995 for JL.
60. Handwritten note (1030am, Sat 15/04/1995) from CDTM to JL. This note was left for JL/GBP with equipment at Jeedamya pastoral station. The note listed, inter alia, 'Bird bands/flags etc.)'.
61. Handwritten notes (only 2<sup>nd</sup> page included here) by JL headed 'Grant's [GBP's] Tasks Sat 8 → Tues 11 April 95'. Inter alia they read: 'No-one should walk thru or otherwise disturb nesting area which has chicks. No banding of chicks [is to be undertaken] (too small)' and 'Keep leg flags & bands & colour bands & glue with your gear and bring back to Perth'. The 'colour bands' were intended to be used to individually mark adult BaSt on nests (see letter of 23/03/1995 below from ABBBS to GBP).
62. Article 'Banded Stilts Quick off the Mark' by 'Clive Minton, Grant Pearson & Jim Lane' in 'The Tattler, No.3, pp.3-4, April 1995, that inter alia reads: 'We collected lots more data and started some banding/leg flagging. Jim returns on April 26<sup>th</sup> [1995] to continue the studies – especially banding and creche formation'.
63. Australian Bird Study Association Inc. – Mist Net Service' (NSW) 'Stock Price List – Effective from 1<sup>st</sup> April 1995'. Inter alia lists 'Banding Pliers', 'Colour bands', 'Single-colour bands' and Multi-coloured bands'. Also lists 'Computer Program 'Sheba' – Ken Roger's program for sexing birds on measurement' [not used by JL *et al.* for BaSt work].
64. Photocopy of a single label that would have accompanied 50 leg-bands numbered 082-95451 to 082-95500'. These were the last 50 of 490 leg-bands [(082) 95011-95500] supplied to GBP by ABBBS on 23/03/1995 (see below). Look to see if we (JL/ACI) still hold any BaSt (i.e. size 8) leg bands (if so, what numbers?) and/or yellow leg flags and glue (trade name of glue?). [JL did so in Feb 2014 and did not find any leftover size 8 bands or any leg flags.
65. A supply/receipt of bands form (23/03/1995) that accompanied leg-bands issued to GBP by ABBBS on 23/03/1995. GBP signed acknowledgement of receipt of these bands – and that the band numbers were as indicated on the form – on 10/04/1995. The form indicates that 490 size '08' leg-bands were issued, with 'Prefix 082' and 'Serial Numbers 95011 to 95500'. **Thus 490 leg-bands were issued on this date.** This form also indicates that the bands were made of 'Metal SS'. Note that 'incoloy' is a type of stainless steel, so 'SS' is not inconsistent with the supplied bands being made of incoloy. See 16/05/1995, above, for more info re incoloy.
66. Undated ABBBS 'Requisition for Banding Supplies' form in which GBP requests 500 size 8, 'metal SS' leg bands be issued to him ('A' Class Authority No. 831). 490 bands were issued on 23/03/1995 (see above) in response to this request.
67. Letter (23/03/1995) from ABBBS to GBP headed 'Approval to Undertake Colour Marking' giving approval to attach yellow leg flags to left tibia of 500 'juvenile' Banded Stilt of '1995+ cohort' in the 'Region' of 'Western Australia'. This letter also approved individually marking 50 adult BaSt with 'master colour over metal' on left tibia and '1 colour' on right tibia in 1995+ in the 'Region' of 'Western Australia'. JL's recollection (30/01/2014) is that no adults were banded, flagged or otherwise marked during the 1995 work on Lakes Ballard and Marmion, but maybe CDTM managed to catch and mark a few. Confirm that no adult BaSt were marked by CDTM at Lake Ballard in 1995 (they had hoped to be able to capture some on nests and individually mark them).

68. Letter (23/03/1995) from ABBBS to GBP ('Authority No. 831') headed 'Approval of New Project' advising that '... your recent application for a new ABBBS project has been approved'. The project is described as 'Study of Banded Stilt breeding biology' in 'Region: Western Australia', 'Locality L. Ballard', 'Locodes: 0831B1' with 'Start Date: 22/03/1995', 'End Date: 30/06/1995' and 'Collaborators' blank. **Compare** with the Applications and Locode Registration below (21/03/1995), where JL was named as Project Supervisor and CDTM as Collaborator and Lake Ballard was to be registered as number '0593B1'.

69. Fax (21/03/1995) from GBP to Barry Baker at ABBBS. Cover sheet reads 'Some details on objectives not included. Jim Lane to advise' and 'Bands required: 500 size 8. Could you direct to CALM Kalgoorlie please'. Two 'Applications' and a 'Locode Registration Sheet' were attached.

Note that the 'Application for a Colour Marking Authority' clearly indicated that it was prepared by GBP on behalf of JAK Lane (an 'A' Class bander with ABBBS Authority No. 0593). The Locode for Lake Ballard was indicated by GBP to be 0593B1 and 'Signature of Applicant' was 'G Pearson for Jim Lane'.

Note also that the 'Project Proposal Application Form' specified 'Jim Lane, Authority No.593' as 'Project Supervisor' and 'Collaborators' as 'Clive Minton'. 'Signature of Applicant' was 'GB Pearson for Jim Lane'. The 'colour banding schema' to be used on BaSt adults was described in this application as 'Colour combinations [unspecified] for adults'.

The 'Locode Registration Sheet', dated 21/03/1995, specified 'JAK Lane, Auth. No.0593' as the 'A' Class Bander and requested registration of 'Locode: 0593B1' (the other details were 'Code Name: Ballard 1', 'Location: Lake Ballard WA' and coordinates '29 degrees 27 minutes South Latitude and 121 degrees 01 minutes East Longitude'). See attached Google Earth image (downloaded 31/01/2014 by JL) showing location with these coordinates. The coordinates **are not as accurate as they could be**, though it's only a matter of 1-2 minutes of Lat and Long.

**Was a Locode subsequently registered for Lake Marmion? If so, what was it? (note that banding was not envisaged there initially).**

70. Fax (20/03/1995; cover sheet and page 2 only) from JL to GBP that lists equipment for use at Lake Ballard.

The list under 'Banding' indicates that JL wanted '20 leg bands of each colour' for 'This trip if possible' **and 500 yellow leg flags** 'certainly for next trip'. GBP has marked both with 'Y' for 'yes'. The 'leg bands of each colour' were intended for use in individually colour-marking nesting BaSt adults (see fax of 21/03/1995, above). The 'yellow leg flags' were for flagging BaSt chicks. Other banding/flagging items listed are 'Pliers', 'Band removers' and 'Banding box'.

The list under 'Hide' includes 'Chicken netting trap', 'Fence wire', 'Fishing line' and 'Steel rods'. All or most of these items would have been intended for use in trapping (alive) individual adult BaSt on nests, for individual colour marking.

71. ABBS 'Approved Band Size List' (No.20 – December 1986). First page plus page listing 'Species No. 147 – Banded Stilt – Band Size 08 – Metals SS'. Note that 'incoloy' is a type of stainless steel.

72. Bird band cartoon, reproduced in 1990 in ABBBS's 'Bander's Bulletin'.

73. Various papers (09/06/1989 – 25/08/1989) inter alia including ABBBS's approval of an 'A' Class Bird Banding Authority for GBP on 27/07/1989. This Authority was for work on ducks and other waterbirds by GBP for Stuart Halse of CALM – work unrelated to GBP's work with JL & CDTM on breeding Banded Stilt in WA in 1995.

74. Cover sheet on front cover of black lever arch file (A4) of GBP with handwritten label 'Australian Bird & Bat Banding Scheme. Schedules etc.' on its spine. Cover sheet (by JL) describes content including Australian Pelican and Banded Stilt materials.

**Table (prepared by JL in Feb 2014) summarising leg-band numbers and dates and places of use on Banded Stilt at Lakes Ballard and Marmion in 1995. The data in this Table is derived from the field notebooks of JL and GBP and summary notes faxed by CDTM to JL on 24/04/1995 (see below).**

**Did GBP submit banding records to ABBBS? Ask ABBBS.**

15

**Table (prepared by JL in Feb 2014) summarising leg-band use on Banded Stilt chicks at Lakes Ballard and Marmion in 1995.**

| Date       | Lake              | Band Prefix & Serial Numbers            | Number Banded | Daily Total Banded |
|------------|-------------------|---|---------------|--------------------|
| 1995.04.13 | Ballard           | (082) 95011-95020                       | 10            | 105                |
| 1995.04.29 | Ballard           | (082) 95021-95057                       | 37            |                    |
| 1995.04.29 | Ballard           | (082) 95059-95109                       | 51            |                    |
| 1995.04.29 | Ballard           | (082) 95111-95127                       | 17            |                    |
| 1995.04.30 | Ballard           | (082) 95058                             | 1             |                    |
| 1995.04.30 | Ballard           | (082) 95110                             | 1             |                    |
| 1995.04.30 | Ballard           | (082) 95128-95244                       | 117           |                    |
| 1995.05.01 | Ballard           | (082) 95245-95369                       | 125           |                    |
| 1995.05.02 | Ballard           | (082) 95370-95415                       | 46            |                    |
| 1995.05.03 | Ballard           | (082) 95416-95450                       | 35            |                    |
| 1995.05.03 | Ballard           | (082) 95452-95500                       | 49            | 84                 |
| 13/4-03/5  | Ballard           | (082) 95011-95450 and (082) 95452-95500 | 489           |                    |
| 1995.06.11 | Marmion           | (082) 95501-95700                       | 200           | 200                |
| 11/06      | Marmion           | (082) 95501-95700                       | 200           |                    |
| 13/4-11/6  | Ballard & Marmion | (082) 95011-95450 and (082) 95452-95700 | 689           |                    |

Notes.

1. All of the birds that were banded were flightless chicks, of various (and variously recorded) ages. Some of these chicks were also measured and some family groupings were recorded.
2. The supply & receipt form issued (with the leg-bands) by ABBBS on 23/03/1995 and signed by GBP on 10/04/1995 indicates that 490 bands were supplied initially, with prefix 082 and serial numbers 95011-95500. Of these, 489 were used at Lake Ballard from 13/04/1995 to 03/05/1995.
3. Band number (082) 95451 was missing & presumed not used (at Ballard on 03/05/1995).
4. More leg-bands were requested from ABBBS by GBP on 16/05/1995 and 200 were apparently supplied, in time for the banding undertaken at Lake Marmion on 11/06/1995.
5. Only one of the 690 (490+200) leg-bands supplied by ABBBS was not used (see Note 3 above). Thus 689 of the 690 leg-bands that were supplied by ABBBS were used.
6. The data in this Table is derived from the field notebooks (see another RMCR for these) of JL and GBP and summary notes faxed by CDTM to JL on 24/04/1995 (see elsewhere in this RMCR for these). **Did GBP submit banding sheets to ABBBS? Ask ABBBS.**

**Table (prepared by JL in Feb 2014) summarising numbers of leg-flags and dates and places of use on Banded Stilt at Lakes Ballard and Marmion in 1995. The data in this Table is derived from reports (GBP only); field notebooks (JL and GBP); summary notes (faxed by CDTM to JL on 24/04/1995) and records of phone conversations (see below for all). There are inconsistencies in some of these figures. Did GBP submit flagging records to ABBBS? There are no copies among his papers (searched by JL in Jan-Feb 2014). Ask ABBBS. Did CDTM? (see 06/10/2000).**

**Table (prepared by JL in Feb 2014) summarising leg-flag use on Banded Stilt chicks at Lakes Ballard and Marmion in 1995.**

The purpose of this Table is to compare the numbers flagged according to various source materials (all those available to JL as at 03/02/2014), namely 'Field Notes', 'Reports' and 'Other Communications', all of which are included in this RMCR.

The total number flagged at Lake Ballard is clear. It was  $171 + 10 = 181$ .

The number flagged at Lake Marmion on 11-12/06/1995 is not at all clear. Annotations on GBP's report seem to indicate a total of 475, but a tally of numbers in his Field Notes indicates 371.

Various documents in this RMCR (see in particular 20/03/1995, 22/03/1995, 16/05/1996, 'Rough Jottings' for 07/10/1996, and 13/04/2000) suggest that 500 leg flags were made for the flagging effort in WA in 1995. If, as other documents in this RMCR suggest, all were used, then the total number used at Lake Marmion would have been 500 minus the 181 used at Ballard minus the 20 that were removed (ACI thinks, on 03/02/2014, destructively) after being attached to what was thought to be the wrong leg at Marmion. By this calculation, the total number flagged at Marmion would have been **299** ( $500 - 181 - 20$ ), but this isn't close to any of GBP's figures either! For either of GBP's totals to be correct, more than 500 flags would have had to have been supplied by VWSG.

| Date       | Lake    | Number Flagged (according to Field Notes) | Number Flagged (according to Reports) | Number Flagged (according to other communications) | Number Flagged (according to ABBBS Returns) | Flagged by whom? |
|------------|---------|---|---------------------------------------|--|---|------------------|
| 1995.04.13 | Ballard | —   | —                                     | 10   | ?   | by CDTM.         |
| 1995.04.29 | Ballard | 0   | —                                     | —  | ?   | by JL & ACI      |
| 1995.04.30 | Ballard | 19  | —                                     | —  | ?   | by JL & ACI      |
| 1995.05.01 | Ballard | 24  | —                                     | —  | ?   | by JL & ACI      |
| 1995.05.02 | Ballard | 28  | —                                     | —  | ?   | by JL & ACI      |
| 1995.05.03 | Ballard | 100                                       | —                                     | —  | ?   | by JL & ACI      |
| 13/4-03/5  | Ballard | <b>171</b>                                | —                                     | <b>10</b>  | ?   |                  |

|              |                |            |                                  |                                      |   |                    |
|--------------|----------------|------------|----------------------------------|--------------------------------------|---|--------------------|
| 1995.06.11   | Marmion        | <b>213</b> | 195 (+20?, on 11/06 or 12/06?).  | 200 (220 done, but 20 then removed). | ? | by GBP, ACI & ACh. |
| 1995.06.12   | Marmion        | <b>158</b> | 260? (+20?, on 11/06 or 12/06?). |                                      | ? | by GBP & ACI.      |
| <b>11/06</b> | <b>Marmion</b> | <b>371</b> | <b>'475'</b>                     |                                      | ? |                    |

Notes.

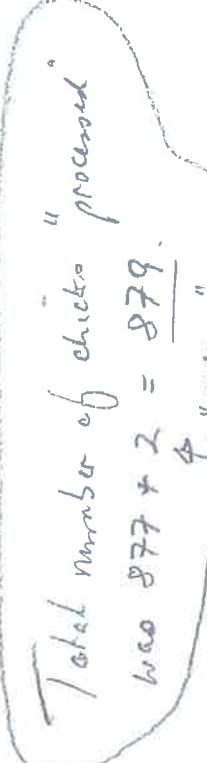
1. All of the birds that were flagged were flightless chicks, of various (and variously recorded) ages. Some of these chicks were also measured and some family groupings were recorded.
2. The data in this Table are derived from (A) relevant sections of the field notebooks of JL and GBP; (B) a typed report by GBP on the June 1995 flagging at Lake Marmion – and his annotations on this; (C) JL's record of a phone conversation with GBP on 11/06/1995; (D) summary notes faxed by CDTM to JL on 24/04/1995. Copies of all of these are reproduced elsewhere in this RMCR.

3. Tally in GBP's field notes of chicks flagged at Marmion on 11/06/1995 is: 200 (all banded & flagged) + 13 (flagged only) = 213.
4. Tally in GBP's field notes of chicks flagged at Marmion on 12/06/1995 is: 30 + 5 +26 + 23 +6 + 22 + 9 +25 + 12 = 158.
5. Did GBP submit banding sheets to ABBBS? Ask ABBBS.
6. How many yellow leg-flags did CDTM, JL & GBP have for all the flagging that was done from 13/04/1995 (when CDTM did the first flagging) to 12/06/1995 (when GBP & ACI finished using all of the flags they had)? This might be the only way of determining how many flags were used at Lake Marmion on the 11<sup>th</sup> and, in particular, the 12<sup>th</sup> June 1995. Would VWSG have a record of how many yellow flags they made and sent to WA in 1995?

**Tally sheet for 'Banded Stilt banded and/or flagged on Lakes Ballard & Marmion in 1995'. This Tally Sheet was prepared by JL on 01/02/2014 and is based solely on the data in the Excel spreadsheet below (headed 'Banded Stilt banded and/or flagged on Lakes Ballard & Marmion in 1995').**

Printed 01/02/2014 

**TALLY SHEET for 'Banded Stilt banded and/or flagged on Lakes Ballard & Marmion in 1995**  
**Tallying data of another Excel spreadsheet with this name.**

  
 Total number of chicks "processed"  
 was  $877 + 2 = \frac{879}{4}$  "retags"

| Date                | Lake              | Who by?     | Total Bandd | Band on L | Band on R | Total Flagd | Flagd on L | Flagd on R | Bandd but not Flagd | Flagd but not Bandd | Bandd & Flagd | Bandd on L & Flagd on R | Bandd on R & Flagd on L | Comments        |
|---------------------|-------------------|-------------|-------------|-----------|-----------|-------------|------------|------------|---------------------|---------------------|---------------|-------------------------|-------------------------|-----------------|
| 1995.04.13          | Ballard           | CDTM        | 10          | 10        | 0         | 10          | 0          | 10         | 0                   | 0                   | 10            | 10                      | 0                       |                 |
| <b>Totals</b>       |                   | CDTM        | 10          | 10        | 0         | 10          | 0          | 10         | 0                   | 0                   | 10            | 10                      | 0                       |                 |
| 1995.04.29          | Ballard           | JL ACI      | 105         | 0         | 105       | 0           | 0          | 0          | 105                 | 0                   | 0             | 0                       | 0                       |                 |
| 1995.04.30          | Ballard           | JL ACI      | 119         | 2         | 117       | 19          | 19         | 0          | (119-19)<br>=100    | 0                   | 19            | 0                       | 19                      | Plus 2 "retags" |
| 1995.05.01          | Ballard           | JL ACI      | 125         | 0         | 125       | 24          | 24         | 0          | (125-24)<br>=101    | 0                   | 24            | 0                       | 24                      |                 |
| 1995.05.02          | Ballard           | JL ACI      | 46          | 0         | 46        | 28          | 28         | 0          | (46-28)<br>=18      | 0                   | 28            | 0                       | 28                      |                 |
| 1995.05.03          | Ballard           | JL ACI      | 84          | 0         | 84        | 100         | 100        | 0          | 1                   | 17                  | 83            | 0                       | 83                      |                 |
| <b>Totals</b>       | Ballard           | JL ACI      | 479         | 2         | 477       | 171         | 171        | 0          | 326                 | 17                  | 154           | 0                       | 154                     |                 |
| <b>Grand Totals</b> | Ballard           |             | 489         | 12        | 477       | 181         | 171        | 10         | 325                 | 17                  | 164           | 10                      | 154                     |                 |
| 1995.06.11          | Marmion           | GBP ACI ACh | 200         | 0         | 213       | 0           | 213        | 0          | 13                  | 200                 | 200           | 0                       | 0                       |                 |
| 1995.06.12          | Marmion           | GBP ACI ACh | 0           | 0         | 0         | 158         | 158        | 0          | 0                   | 158                 | 0             | 0                       | 0                       |                 |
| <b>Totals</b>       | Marmion           | GBP ACI ACh | 200         | 0         | 371       | 158         | 213        | 0          | 171                 | 200                 | 200           | 0                       | 0                       |                 |
| <b>Grand Totals</b> | Marmion           | GBP ACI ACh | 200         | 0         | 371       | 158         | 213        | 0          | 171                 | 200                 | 200           | 0                       | 0                       |                 |
| <b>Grand Totals</b> | Ballard & Marmion |             | 689         | 212       | 477       | 552         | 329        | 223        | 325                 | 188                 | 364           | 210                     | 154                     | Plus 2 "retags" |

66 Years Toured

$$\begin{array}{r}
 490 \\
 200 \\
 \hline
 690 \\
 -1 \\
 \hline
 689
 \end{array}$$

689

552

877

364

How many flags were issued.

in agreement

  
 01/05/2014

**Printout (01/02/2014) of Excel spreadsheet 'Banded Stilt banded and/or flagged on Lakes Ballard & Marmion in 1995' prepared by JL in late Jan – early Feb 2014. The data in it is derived solely from relevant sections of the field notebooks of JL and GBP and summary notes provided faxed to JL by CDTM on 24/04/1995 (see elsewhere in this RMCR for all of these).**

**Note that the data JL has derived from GBP's field notebooks does not match the totals in GBP's report of 17/06/1995. Did GBP submit numbers to ABBBS? Ask ABBBS.**

## Banded Stilt banded and/or flagged on Lakes Ballard &amp; Marmion in 1995

This is a Table of each individual banded and/or flagged chick.

TO DO: Count banded, flagged, banded&amp;flagged, flag on left v. flag on right, recaptures (2). Compare sources and tallies. Find all GBP's ABBBS sheets. Check with ABBBS.

| Order of processing | Order of Bndng / Fngng | Date       | Lake    | Who by? | Band Prfx | Band No. | Band Leg | Flagd? | Flag Leg | Comment                           |
|---------------------|------------------------|------------|---------|---------|-----------|----------|----------|--------|----------|-----------------------------------|
| 1                   | 1                      | 1995.04.13 | Ballard | CDTM    | 082       | 95011    | L        | Y      | R        |                                   |
| 2                   | 2                      | 1995.04.13 | Ballard | CDTM    | 082       | 95012    | L        | Y      | R        |                                   |
| 3                   | 3                      | 1995.04.13 | Ballard | CDTM    | 082       | 95013    | L        | Y      | R        |                                   |
| 4                   | 4                      | 1995.04.13 | Ballard | CDTM    | 082       | 95014    | L        | Y      | R        |                                   |
| 5                   | 5                      | 1995.04.13 | Ballard | CDTM    | 082       | 95015    | L        | Y      | R        |                                   |
| 6                   | 6                      | 1995.04.13 | Ballard | CDTM    | 082       | 95016    | L        | Y      | R        |                                   |
| 7                   | 7                      | 1995.04.13 | Ballard | CDTM    | 082       | 95017    | L        | Y      | R        |                                   |
| 8                   | 8                      | 1995.04.13 | Ballard | CDTM    | 082       | 95018    | L        | Y      | R        |                                   |
| 9                   | 9                      | 1995.04.13 | Ballard | CDTM    | 082       | 95019    | L        | Y      | R        |                                   |
| 10                  | 10                     | 1995.04.13 | Ballard | CDTM    | 082       | 95020    | L        | Y      | R        | 'They were flagged rt, banded lf' |
| 11                  | 11                     | 1995.04.29 | Ballard | JL, ACI | 082       | 95021    | R        | N      |          | Started at 1352hrs                |
| 12                  | 12                     | 1995.04.29 | Ballard | JL, ACI | 082       | 95022    | R        | N      |          |                                   |
| 13                  | 13                     | 1995.04.29 | Ballard | JL, ACI | 082       | 95023    | R        | N      |          |                                   |
| 14                  | 14                     | 1995.04.29 | Ballard | JL, ACI | 082       | 95024    | R        | N      |          |                                   |
| 15                  | 15                     | 1995.04.29 | Ballard | JL, ACI | 082       | 95025    | R        | N      |          |                                   |
| 16                  | 16                     | 1995.04.29 | Ballard | JL, ACI | 082       | 95026    | R        | N      |          |                                   |
| 17                  | 17                     | 1995.04.29 | Ballard | JL, ACI | 082       | 95027    | R        | N      |          |                                   |
| 18                  | 18                     | 1995.04.29 | Ballard | JL, ACI | 082       | 95028    | R        | N      |          |                                   |
| 19                  | 19                     | 1995.04.29 | Ballard | JL, ACI | 082       | 95029    | R        | N      |          |                                   |
| 20                  | 20                     | 1995.04.29 | Ballard | JL, ACI | 082       | 95030    | R        | N      |          |                                   |
| 21                  | 21                     | 1995.04.29 | Ballard | JL, ACI | 082       | 95031    | R        | N      |          |                                   |
| 22                  | 22                     | 1995.04.29 | Ballard | JL, ACI | 082       | 95032    | R        | N      |          |                                   |
| 23                  | 23                     | 1995.04.29 | Ballard | JL, ACI | 082       | 95033    | R        | N      |          |                                   |
| 24                  | 24                     | 1995.04.29 | Ballard | JL, ACI | 082       | 95034    | R        | N      |          |                                   |
| 25                  | 25                     | 1995.04.29 | Ballard | JL, ACI | 082       | 95035    | R        | N      |          |                                   |
| 26                  | 26                     | 1995.04.29 | Ballard | JL, ACI | 082       | 95036    | R        | N      |          |                                   |
| 27                  | 27                     | 1995.04.29 | Ballard | JL, ACI | 082       | 95037    | R        | N      |          |                                   |
| 28                  | 28                     | 1995.04.29 | Ballard | JL, ACI | 082       | 95038    | R        | N      |          |                                   |
| 29                  | 29                     | 1995.04.29 | Ballard | JL, ACI | 082       | 95039    | R        | N      |          |                                   |
| 30                  | 30                     | 1995.04.29 | Ballard | JL, ACI | 082       | 95040    | R        | N      |          |                                   |
| 31                  | 31                     | 1995.04.29 | Ballard | JL, ACI | 082       | 95041    | R        | N      |          |                                   |
| 32                  | 32                     | 1995.04.29 | Ballard | JL, ACI | 082       | 95042    | R        | N      |          |                                   |
| 33                  | 33                     | 1995.04.29 | Ballard | JL, ACI | 082       | 95043    | R        | N      |          |                                   |
| 34                  | 34                     | 1995.04.29 | Ballard | JL, ACI | 082       | 95044    | R        | N      |          |                                   |
| 35                  | 35                     | 1995.04.29 | Ballard | JL, ACI | 082       | 95045    | R        | N      |          |                                   |
| 36                  | 36                     | 1995.04.29 | Ballard | JL, ACI | 082       | 95046    | R        | N      |          |                                   |
| 37                  | 37                     | 1995.04.29 | Ballard | JL, ACI | 082       | 95047    | R        | N      |          |                                   |
| 38                  | 38                     | 1995.04.29 | Ballard | JL, ACI | 082       | 95048    | R        | N      |          |                                   |
| 39                  | 39                     | 1995.04.29 | Ballard | JL, ACI | 082       | 95049    | R        | N      |          |                                   |
| 40                  | 40                     | 1995.04.29 | Ballard | JL, ACI | 082       | 95050    | R        | N      |          |                                   |
| 41                  | 41                     | 1995.04.29 | Ballard | JL, ACI | 082       | 95051    | R        | N      |          |                                   |
| 42                  | 42                     | 1995.04.29 | Ballard | JL, ACI | 082       | 95052    | R        | N      |          |                                   |
| 43                  | 43                     | 1995.04.29 | Ballard | JL, ACI | 082       | 95053    | R        | N      |          |                                   |
| 44                  | 44                     | 1995.04.29 | Ballard | JL, ACI | 082       | 95054    | R        | N      |          |                                   |
| 45                  | 45                     | 1995.04.29 | Ballard | JL, ACI | 082       | 95055    | R        | N      |          |                                   |
| 46                  | 46                     | 1995.04.29 | Ballard | JL, ACI | 082       | 95056    | R        | N      |          |                                   |
| 47                  | 47                     | 1995.04.29 | Ballard | JL, ACI | 082       | 95057    | R        | N      |          |                                   |
| 48                  | 48                     | 1995.04.29 | Ballard | JL, ACI | 082       | 95059    | R        | N      |          | 95058 used next day.              |
| 49                  | 49                     | 1995.04.29 | Ballard | JL, ACI | 082       | 95060    | R        | N      |          |                                   |
| 50                  | 50                     | 1995.04.29 | Ballard | JL, ACI | 082       | 95061    | R        | N      |          |                                   |

| Order of processing | Order of Bndng / Flng | Date       | Lake    | Who by? | Band Prfx | Band No. | Band Leg | Flagd? | Flag Leg | Comment              |
|---------------------|-----------------------|------------|---------|---------|-----------|----------|----------|--------|----------|----------------------|
| 51                  | 51                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95062    | R        | N      |          |                      |
| 52                  | 52                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95063    | R        | N      |          |                      |
| 53                  | 53                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95064    | R        | N      |          |                      |
| 54                  | 54                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95065    | R        | N      |          |                      |
| 55                  | 55                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95066    | R        | N      |          |                      |
| 56                  | 56                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95067    | R        | N      |          |                      |
| 57                  | 57                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95068    | R        | N      |          |                      |
| 58                  | 58                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95069    | R        | N      |          |                      |
| 59                  | 59                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95070    | R        | N      |          |                      |
| 60                  | 60                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95071    | R        | N      |          |                      |
| 61                  | 61                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95072    | R        | N      |          |                      |
| 62                  | 62                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95073    | R        | N      |          |                      |
| 63                  | 63                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95074    | R        | N      |          |                      |
| 64                  | 64                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95075    | R        | N      |          |                      |
| 65                  | 65                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95076    | R        | N      |          |                      |
| 66                  | 66                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95077    | R        | N      |          |                      |
| 67                  | 67                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95078    | R        | N      |          |                      |
| 68                  | 68                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95079    | R        | N      |          |                      |
| 69                  | 69                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95080    | R        | N      |          |                      |
| 70                  | 70                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95081    | R        | N      |          |                      |
| 71                  | 71                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95082    | R        | N      |          |                      |
| 72                  | 72                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95083    | R        | N      |          |                      |
| 73                  | 73                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95084    | R        | N      |          |                      |
| 74                  | 74                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95085    | R        | N      |          |                      |
| 75                  | 75                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95086    | R        | N      |          |                      |
| 76                  | 76                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95087    | R        | N      |          |                      |
| 77                  | 77                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95088    | R        | N      |          |                      |
| 78                  | 78                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95089    | R        | N      |          |                      |
| 79                  | 79                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95090    | R        | N      |          |                      |
| 80                  | 80                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95091    | R        | N      |          |                      |
| 81                  | 81                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95092    | R        | N      |          |                      |
| 82                  | 82                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95093    | R        | N      |          |                      |
| 83                  | 83                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95094    | R        | N      |          |                      |
| 84                  | 84                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95095    | R        | N      |          |                      |
| 85                  | 85                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95096    | R        | N      |          |                      |
| 86                  | 86                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95097    | R        | N      |          |                      |
| 87                  | 87                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95098    | R        | N      |          |                      |
| 88                  | 88                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95099    | R        | N      |          |                      |
| 89                  | 89                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95100    | R        | N      |          |                      |
| 90                  | 90                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95101    | R        | N      |          |                      |
| 91                  | 91                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95102    | R        | N      |          |                      |
| 92                  | 92                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95103    | R        | N      |          |                      |
| 93                  | 93                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95104    | R        | N      |          |                      |
| 94                  | 94                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95105    | R        | N      |          |                      |
| 95                  | 95                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95106    | R        | N      |          |                      |
| 96                  | 96                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95107    | R        | N      |          |                      |
| 97                  | 97                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95108    | R        | N      |          |                      |
| 98                  | 98                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95109    | R        | N      |          |                      |
| 99                  | 99                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95111    | R        | N      |          | 95110 used next day. |
| 100                 | 100                   | 1995.04.29 | Ballard | JL, ACI | 082       | 95112    | R        | N      |          |                      |
| 101                 | 101                   | 1995.04.29 | Ballard | JL, ACI | 082       | 95113    | R        | N      |          |                      |
| 102                 | 102                   | 1995.04.29 | Ballard | JL, ACI | 082       | 95114    | R        | N      |          |                      |
| 103                 | 103                   | 1995.04.29 | Ballard | JL, ACI | 082       | 95115    | R        | N      |          |                      |
| 104                 | 104                   | 1995.04.29 | Ballard | JL, ACI | 082       | 95116    | R        | N      |          |                      |
| 105                 | 105                   | 1995.04.29 | Ballard | JL, ACI | 082       | 95117    | R        | N      |          |                      |
| 106                 | 106                   | 1995.04.29 | Ballard | JL, ACI | 082       | 95118    | R        | N      |          |                      |
| 107                 | 107                   | 1995.04.29 | Ballard | JL, ACI | 082       | 95119    | R        | N      |          |                      |

| Order of processing | Order of Bndng / Flgng | Date       | Lake    | Who by? | Band Prfx | Band No. | Band Leg | Flagd? | Flag Leg | Comment  |
|---------------------|------------------------|------------|---------|---------|-----------|----------|----------|--------|----------|--|
| 108                 | 108                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95120    | R        | N      |          |  |
| 109                 | 109                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95121    | R        | N      |          |  |
| 110                 | 110                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95122    | R        | N      |          |  |
| 111                 | 111                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95123    | R        | N      |          |  |
| 112                 | 112                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95124    | R        | N      |          |  |
| 113                 | 113                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95125    | R        | N      |          |  |
| 114                 | 114                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95126    | R        | N      |          |  |
| 115                 | 115                    | 1995.04.29 | Ballard | JL, ACI | 082       | 95127    | R        | N      |          | Stopped at 1640hrs.  |
| 116                 | 116                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95058    | R        | Y      | L        | Started soon after 1114hrs<br>On 30/4, only flagged largest chicks.  |
| 117                 | 117                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95129    | R        | Y      | L        |  |
| 118                 | 118                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95131    | R        | Y      | L        |  |
| 119                 | 119                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95130    | R        | Y      | L        |  |
| 120                 | 120                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95128    | R        | Y      | L        | Photos of 95128 or 95132   |
| 121                 | 121                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95132    | R        | Y      | L        | Photos of 95128 or 95132   |
| 122                 | 122                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95110    | R        | Y      | L        |  |
| 123                 | 123                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95133    | R        | Y      | L        |  |
| 124                 | 124                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95134    | R        | N      |          |  |
| 125                 | 125                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95135    | L        | N      |          | 'Banded on left leg by mistake'.<br>'Banded on left leg by mistake'. |
| 126                 | 126                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95136    | L        | N      | L        |  |
| 127                 | 127                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95137    | R        | Y      |          |  |
| 128                 | 128                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95138    | R        | N      |          |  |
| 129                 | 129                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95139    | R        | N      |          |  |
| 130                 | 130                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95140    | R        | N      |          |  |
| 131                 | 131                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95141    | R        | N      |          |  |
| 132                 | 132                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95142    | R        | N      |          |  |
| 133                 | 133                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95143    | R        | N      |          |  |
| 134                 | 134                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95144    | R        | Y      | L        |  |
| 135                 | 135                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95145    | R        | Y      | L        |  |
| 136                 | 136                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95146    | R        | N      |          |  |
| 137                 | 137                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95147    | R        | N      |          |  |
| 138                 | 138                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95148    | R        | Y      | L        |  |
| 139                 | 139                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95149    | R        | N      |          |  |
| 140                 |                        | 1995.04.30 | Ballard | JL, ACI | 082       | 95094    |          |        |          | Retrap of banded but not flagged chick.                              |
| 141                 |                        | 1995.04.30 | Ballard | JL, ACI | 082       | 95092    |          |        |          | Retrap of banded but not flagged chick.                              |
| 142                 | 140                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95150    | R        | N      |          | Stopped at 1255hrs.  |
| 143                 | 141                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95151    | R        | Y      | L        | Re-started at 1315hrs.   |
| 144                 | 142                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95152    | R        | Y      | L        |  |
| 145                 | 143                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95153    | R        | Y      | L        |  |
| 146                 | 144                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95154    | R        | Y      | L        |  |
| 147                 | 145                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95155    | R        | N      |          |  |
| 148                 | 146                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95156    | R        | N      |          |  |
| 149                 | 147                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95157    | R        | N      |          |  |
| 150                 | 148                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95158    | R        | N      |          |  |
| 151                 | 149                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95159    | R        | N      |          |  |
| 152                 | 150                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95160    | R        | N      |          |  |
| 153                 | 151                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95161    | R        | N      |          |  |
| 154                 | 152                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95162    | R        | N      |          |  |
| 155                 | 153                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95163    | R        | N      |          |  |
| 156                 | 154                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95164    | R        | N      |          |  |
| 157                 | 155                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95165    | R        | N      |          |  |

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| Order of processing | Order of Bndng / Flgng | Date       | Lake    | Who by? | Band Prfx | Band No. | Band Leg | Flagd? | Flag Leg | Comment |
|---------------------|------------------------|------------|---------|---------|-----------|----------|----------|--------|----------|---------|
| 158                 | 156                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95166    | R        | N      |          |         |
| 159                 | 157                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95167    | R        | N      |          |         |
| 160                 | 158                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95168    | R        | N      |          |         |
| 161                 | 159                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95169    | R        | N      |          |         |
| 162                 | 160                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95170    | R        | N      |          |         |
| 163                 | 161                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95171    | R        | N      |          |         |
| 164                 | 162                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95172    | R        | N      |          |         |
| 165                 | 163                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95173    | R        | N      |          |         |
| 166                 | 164                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95174    | R        | N      |          |         |
| 167                 | 165                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95175    | R        | N      |          |         |
| 168                 | 166                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95176    | R        | N      |          |         |
| 169                 | 167                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95177    | R        | N      |          |         |
| 170                 | 168                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95178    | R        | N      |          |         |
| 171                 | 169                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95179    | R        | N      |          |         |
| 172                 | 170                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95180    | R        | N      |          |         |
| 173                 | 171                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95181    | R        | N      |          |         |
| 174                 | 172                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95182    | R        | N      |          |         |
| 175                 | 173                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95183    | R        | N      |          |         |
| 176                 | 174                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95184    | R        | N      |          |         |
| 177                 | 175                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95185    | R        | N      |          |         |
| 178                 | 176                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95186    | R        | N      |          |         |
| 179                 | 177                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95187    | R        | N      |          |         |
| 180                 | 178                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95188    | R        | N      |          |         |
| 181                 | 179                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95189    | R        | Y      | L        |         |
| 182                 | 180                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95190    | R        | Y      | L        |         |
| 183                 | 181                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95191    | R        | Y      | L        |         |
| 184                 | 182                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95192    | R        | N      |          |         |
| 185                 | 183                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95193    | R        | N      |          |         |
| 186                 | 184                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95194    | R        | N      |          |         |
| 187                 | 185                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95195    | R        | N      |          |         |
| 188                 | 186                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95196    | R        | N      |          |         |
| 189                 | 187                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95197    | R        | N      |          |         |
| 190                 | 188                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95198    | R        | N      |          |         |
| 191                 | 189                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95199    | R        | N      |          |         |
| 192                 | 190                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95200    | R        | N      |          |         |
| 193                 | 191                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95201    | R        | N      |          |         |
| 194                 | 192                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95202    | R        | N      |          |         |
| 195                 | 193                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95203    | R        | N      |          |         |
| 196                 | 194                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95204    | R        | N      |          |         |
| 197                 | 195                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95205    | R        | N      |          |         |
| 198                 | 196                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95206    | R        | N      |          |         |
| 199                 | 197                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95207    | R        | N      |          |         |
| 200                 | 198                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95208    | R        | N      |          |         |
| 201                 | 199                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95209    | R        | N      |          |         |
| 202                 | 200                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95210    | R        | N      |          |         |
| 203                 | 201                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95211    | R        | N      |          |         |
| 204                 | 202                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95212    | R        | N      |          |         |
| 205                 | 203                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95213    | R        | N      |          |         |
| 206                 | 204                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95214    | R        | N      |          |         |
| 207                 | 205                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95215    | R        | N      |          |         |
| 208                 | 206                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95216    | R        | N      |          |         |
| 209                 | 207                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95217    | R        | N      |          |         |
| 210                 | 208                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95218    | R        | N      |          |         |
| 211                 | 209                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95219    | R        | N      |          |         |
| 212                 | 210                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95220    | R        | N      |          |         |
| 213                 | 211                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95221    | R        | N      |          |         |
| 214                 | 212                    | 1995.04.30 | Ballard | JL, ACI | 082       | 95222    | R        | N      |          |         |

5.

| Order of processing | Order of Bndng / Flng | Date       | Lake    | Who by? | Band Prfx | Band No. | Band Leg | Flagd? | Flag Leg | Comment                                    |
|---------------------|-----------------------|------------|---------|---------|-----------|----------|----------|--------|----------|--|
| 215                 | 213                   | 1995.04.30 | Ballard | JL, ACI | 082       | 95223    | R        | N      |          |  |
| 216                 | 214                   | 1995.04.30 | Ballard | JL, ACI | 082       | 95224    | R        | N      |          |  |
| 217                 | 215                   | 1995.04.30 | Ballard | JL, ACI | 082       | 95225    | R        | N      |          |  |
| 218                 | 216                   | 1995.04.30 | Ballard | JL, ACI | 082       | 95226    | R        | N      |          |  |
| 219                 | 217                   | 1995.04.30 | Ballard | JL, ACI | 082       | 95227    | R        | N      |          |  |
| 220                 | 218                   | 1995.04.30 | Ballard | JL, ACI | 082       | 95228    | R        | N      |          |  |
| 221                 | 219                   | 1995.04.30 | Ballard | JL, ACI | 082       | 95229    | R        | N      |          |  |
| 222                 | 220                   | 1995.04.30 | Ballard | JL, ACI | 082       | 95230    | R        | N      |          |  |
| 223                 | 221                   | 1995.04.30 | Ballard | JL, ACI | 082       | 95231    | R        | N      |          |  |
| 224                 | 222                   | 1995.04.30 | Ballard | JL, ACI | 082       | 95232    | R        | N      |          |  |
| 225                 | 223                   | 1995.04.30 | Ballard | JL, ACI | 082       | 95233    | R        | N      |          |  |
| 226                 | 224                   | 1995.04.30 | Ballard | JL, ACI | 082       | 95234    | R        | N      |          |  |
| 227                 | 225                   | 1995.04.30 | Ballard | JL, ACI | 082       | 95235    | R        | N      |          |  |
| 228                 | 226                   | 1995.04.30 | Ballard | JL, ACI | 082       | 95236    | R        | N      |          |  |
| 229                 | 227                   | 1995.04.30 | Ballard | JL, ACI | 082       | 95237    | R        | N      |          |  |
| 230                 | 228                   | 1995.04.30 | Ballard | JL, ACI | 082       | 95238    | R        | N      |          |  |
| 231                 | 229                   | 1995.04.30 | Ballard | JL, ACI | 082       | 95239    | R        | N      |          |  |
| 232                 | 230                   | 1995.04.30 | Ballard | JL, ACI | 082       | 95240    | R        | N      |          |  |
| 233                 | 231                   | 1995.04.30 | Ballard | JL, ACI | 082       | 95241    | R        | N      |          |  |
| 234                 | 232                   | 1995.04.30 | Ballard | JL, ACI | 082       | 95242    | R        | N      |          |  |
| 235                 | 233                   | 1995.04.30 | Ballard | JL, ACI | 082       | 95243    | R        | N      |          |  |
| 236                 | 234                   | 1995.04.30 | Ballard | JL, ACI | 082       | 95244    | R        | N      |          | Finished at 1601hrs. '19 flagged on left'. |
| 237                 | 235                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95245    | R        | N      |          | Started soon after 1220hrs.                |
| 238                 | 236                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95246    | R        | N      |          |  |
| 239                 | 237                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95247    | R        | N      |          |  |
| 240                 | 238                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95248    | R        | N      |          |  |
| 241                 | 239                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95249    | R        | N      |          |  |
| 242                 | 240                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95250    | R        | N      |          |  |
| 243                 | 241                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95251    | R        | N      |          |  |
| 244                 | 242                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95252    | R        | N      |          |  |
| 245                 | 243                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95253    | R        | N      |          |  |
| 246                 | 244                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95254    | R        | Y      | L        |  |
| 247                 | 245                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95255    | R        | Y      | L        |  |
| 248                 | 246                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95256    | R        | N      |          |  |
| 249                 | 247                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95257    | R        | N      |          |  |
| 250                 | 248                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95258    | R        | N      |          |  |
| 251                 | 249                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95259    | R        | N      |          |  |
| 252                 | 250                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95260    | R        | N      |          |  |
| 253                 | 251                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95261    | R        | N      |          |  |
| 254                 | 252                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95262    | R        | N      |          |  |
| 255                 | 253                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95263    | R        | N      |          |  |
| 256                 | 254                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95264    | R        | Y      | L        |  |
| 257                 | 255                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95265    | R        | Y      | L        |  |
| 258                 | 256                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95266    | R        | Y      | L        |  |
| 259                 | 257                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95267    | R        | N      |          |  |
| 260                 | 258                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95268    | R        | Y      | L        |  |
| 261                 | 259                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95269    | R        | N      |          |  |
| 262                 | 260                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95270    | R        | N      |          |  |
| 263                 | 261                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95271    | R        | Y      | L        |  |
| 264                 | 262                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95272    | R        | N      |          |  |
| 265                 | 263                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95273    | R        | Y      | L        |  |
| 266                 | 264                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95274    | R        | Y      | L        |  |
| 267                 | 265                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95275    | R        | N      |          |  |
| 268                 | 266                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95276    | R        | N      |          |  |
| 269                 | 267                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95277    | R        | N      |          |  |

6.

| Order of processing | Order of Bndng / Flgng | Date       | Lake    | Who by? | Band Prfx | Band No. | Band Leg | Flagd? | Flag Leg | Comment |
|---------------------|------------------------|------------|---------|---------|-----------|----------|----------|--------|----------|---------|
| 270                 | 268                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95278    | R        | N      |          |         |
| 271                 | 269                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95279    | R        | N      |          |         |
| 272                 | 270                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95280    | R        | N      |          |         |
| 273                 | 271                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95281    | R        | N      |          |         |
| 274                 | 272                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95282    | R        | N      |          |         |
| 275                 | 273                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95283    | R        | N      |          |         |
| 276                 | 274                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95284    | R        | N      |          |         |
| 277                 | 275                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95285    | R        | N      |          |         |
| 278                 | 276                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95286    | R        | N      |          |         |
| 279                 | 277                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95287    | R        | N      |          |         |
| 280                 | 278                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95288    | R        | N      |          |         |
| 281                 | 279                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95289    | R        | N      |          |         |
| 282                 | 280                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95290    | R        | Y      | L        |         |
| 283                 | 281                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95291    | R        | N      |          |         |
| 284                 | 282                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95292    | R        | N      |          |         |
| 285                 | 283                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95293    | R        | N      |          |         |
| 286                 | 284                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95294    | R        | N      |          |         |
| 287                 | 285                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95295    | R        | N      |          |         |
| 288                 | 286                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95296    | R        | N      |          |         |
| 289                 | 287                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95297    | R        | N      |          |         |
| 290                 | 288                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95298    | R        | N      |          |         |
| 291                 | 289                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95299    | R        | N      |          |         |
| 292                 | 290                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95300    | R        | N      |          |         |
| 293                 | 291                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95301    | R        | N      |          |         |
| 294                 | 292                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95302    | R        | N      |          |         |
| 295                 | 293                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95303    | R        | N      |          |         |
| 296                 | 294                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95304    | R        | N      |          |         |
| 297                 | 295                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95305    | R        | N      |          |         |
| 298                 | 296                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95306    | R        | N      |          |         |
| 299                 | 297                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95307    | R        | N      |          |         |
| 300                 | 298                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95308    | R        | N      |          |         |
| 301                 | 299                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95309    | R        | N      |          |         |
| 302                 | 300                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95310    | R        | N      |          |         |
| 303                 | 301                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95311    | R        | N      |          |         |
| 304                 | 302                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95312    | R        | N      |          |         |
| 305                 | 303                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95313    | R        | N      |          |         |
| 306                 | 304                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95314    | R        | N      |          |         |
| 307                 | 305                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95315    | R        | N      |          |         |
| 308                 | 306                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95316    | R        | N      |          |         |
| 309                 | 307                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95317    | R        | N      |          |         |
| 310                 | 308                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95318    | R        | N      |          |         |
| 311                 | 309                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95319    | R        | N      |          |         |
| 312                 | 310                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95320    | R        | N      |          |         |
| 313                 | 311                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95321    | R        | N      |          |         |
| 314                 | 312                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95322    | R        | N      |          |         |
| 315                 | 313                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95323    | R        | N      |          |         |
| 316                 | 314                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95324    | R        | N      |          |         |
| 317                 | 315                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95325    | R        | N      |          |         |
| 318                 | 316                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95326    | R        | N      |          |         |
| 319                 | 317                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95327    | R        | N      |          |         |
| 320                 | 318                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95328    | R        | N      |          |         |
| 321                 | 319                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95329    | R        | N      |          |         |
| 322                 | 320                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95330    | R        | N      |          |         |
| 323                 | 321                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95331    | R        | N      |          |         |
| 324                 | 322                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95332    | R        | N      |          |         |
| 325                 | 323                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95333    | R        | N      |          |         |
| 326                 | 324                    | 1995.05.01 | Ballard | JL, ACI | 082       | 95334    | R        | N      |          |         |

| Order of processing | Order of Bndng / Flng | Date       | Lake    | Who by? | Band Prfx | Band No. | Band Leg | Flagd? | Flag Leg | Comment                             |
|---------------------|-----------------------|------------|---------|---------|-----------|----------|----------|--------|----------|-------------------------------------|
| 327                 | 325                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95335    | R        | N      |          |                                     |
| 328                 | 326                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95336    | R        | N      |          |                                     |
| 329                 | 327                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95337    | R        | N      |          |                                     |
| 330                 | 328                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95338    | R        | N      |          |                                     |
| 331                 | 329                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95339    | R        | N      |          |                                     |
| 332                 | 330                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95340    | R        | N      |          |                                     |
| 333                 | 331                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95341    | R        | N      |          |                                     |
| 334                 | 332                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95342    | R        | N      |          |                                     |
| 335                 | 333                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95343    | R        | N      |          |                                     |
| 336                 | 334                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95344    | R        | N      |          |                                     |
| 337                 | 335                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95345    | R        | N      |          |                                     |
| 338                 | 336                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95346    | R        | N      |          |                                     |
| 339                 | 337                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95347    | R        | N      |          |                                     |
| 340                 | 338                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95348    | R        | N      |          |                                     |
| 341                 | 339                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95349    | R        | N      |          |                                     |
| 342                 | 340                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95350    | R        | N      |          |                                     |
| 343                 | 341                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95351    | R        | N      |          |                                     |
| 344                 | 342                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95352    | R        | N      |          |                                     |
| 345                 | 343                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95353    | R        | Y      | L        |                                     |
| 346                 | 344                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95354    | R        | Y      | L        |                                     |
| 347                 | 345                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95355    | R        | Y      | L        |                                     |
| 348                 | 346                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95356    | R        | Y      | L        |                                     |
| 349                 | 347                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95357    | R        | Y      | L        |                                     |
| 350                 | 348                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95358    | R        | Y      | L        |                                     |
| 351                 | 349                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95359    | R        | Y      | L        |                                     |
| 352                 | 350                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95360    | R        | Y      | L        |                                     |
| 353                 | 351                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95361    | R        | Y      | L        |                                     |
| 354                 | 352                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95362    | R        | Y      | L        |                                     |
| 355                 | 353                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95363    | R        | N      |          |                                     |
| 356                 | 354                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95364    | R        | N      |          |                                     |
| 357                 | 355                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95365    | R        | Y      | L        |                                     |
| 358                 | 356                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95366    | R        | Y      | L        |                                     |
| 359                 | 357                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95367    | R        | N      |          |                                     |
| 360                 | 358                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95368    | R        | Y      | L        |                                     |
| 361                 | 359                   | 1995.05.01 | Ballard | JL, ACI | 082       | 95369    | R        | Y      | L        | Stopped at 1640hrs.                 |
| 362                 | 360                   | 1995.05.02 | Ballard | JL, ACI | 082       | 95370    | R        | Y      | L        | Started after 0840hrs. ACh with us. |
| 363                 | 361                   | 1995.05.02 | Ballard | JL, ACI | 082       | 95371    | R        | N      |          | Stopped at 0925hrs.                 |
| 364                 | 362                   | 1995.05.02 | Ballard | JL, ACI | 082       | 95372    | R        | N      |          | Re-started at 1432hrs.              |
| 365                 | 363                   | 1995.05.02 | Ballard | JL, ACI | 082       | 95373    | R        | N      |          |                                     |
| 366                 | 364                   | 1995.05.02 | Ballard | JL, ACI | 082       | 95374    | R        | N      |          |                                     |
| 367                 | 365                   | 1995.05.02 | Ballard | JL, ACI | 082       | 95375    | R        | N      |          |                                     |
| 368                 | 366                   | 1995.05.02 | Ballard | JL, ACI | 082       | 95376    | R        | N      |          |                                     |
| 369                 | 367                   | 1995.05.02 | Ballard | JL, ACI | 082       | 95377    | R        | N      |          |                                     |
| 370                 | 368                   | 1995.05.02 | Ballard | JL, ACI | 082       | 95378    | R        | N      |          |                                     |
| 371                 | 369                   | 1995.05.02 | Ballard | JL, ACI | 082       | 95379    | R        | N      |          |                                     |
| 372                 | 370                   | 1995.05.02 | Ballard | JL, ACI | 082       | 95380    | R        | N      |          |                                     |
| 373                 | 371                   | 1995.05.02 | Ballard | JL, ACI | 082       | 95381    | R        | N      |          |                                     |
| 374                 | 372                   | 1995.05.02 | Ballard | JL, ACI | 082       | 95382    | R        | Y      | L        |                                     |
| 375                 | 373                   | 1995.05.02 | Ballard | JL, ACI | 082       | 95383    | R        | N      |          |                                     |
| 376                 | 374                   | 1995.05.02 | Ballard | JL, ACI | 082       | 95384    | R        | Y      | L        |                                     |
| 377                 | 375                   | 1995.05.02 | Ballard | JL, ACI | 082       | 95385    | R        | N      |          |                                     |
| 378                 | 376                   | 1995.05.02 | Ballard | JL, ACI | 082       | 95386    | R        | N      |          |                                     |
| 379                 | 377                   | 1995.05.02 | Ballard | JL, ACI | 082       | 95387    | R        | Y      | L        |                                     |
| 380                 | 378                   | 1995.05.02 | Ballard | JL, ACI | 082       | 95388    | R        | Y      | L        |                                     |
| 381                 | 379                   | 1995.05.02 | Ballard | JL, ACI | 082       | 95389    | R        | N      |          |                                     |
| 382                 | 380                   | 1995.05.02 | Ballard | JL, ACI | 082       | 95390    | R        | N      |          |                                     |

| Order of processing | Order of Bndng / Flgng | Date       | Lake    | Who by? | Band Prfx | Band No. | Band Leg | Flagd? | Flag Leg | Comment                          |
|---------------------|------------------------|------------|---------|---------|-----------|----------|----------|--------|----------|----------------------------------|
| 383                 | 381                    | 1995.05.02 | Ballard | JL, ACI | 082       | 95391    | R        | N      |          |                                  |
| 384                 | 382                    | 1995.05.02 | Ballard | JL, ACI | 082       | 95392    | R        | N      |          |                                  |
| 385                 | 383                    | 1995.05.02 | Ballard | JL, ACI | 082       | 95393    | R        | Y      | L        |                                  |
| 386                 | 384                    | 1995.05.02 | Ballard | JL, ACI | 082       | 95394    | R        | Y      | L        |                                  |
| 387                 | 385                    | 1995.05.02 | Ballard | JL, ACI | 082       | 95396    | R        | Y      | L        | 1542hrs.                         |
| 388                 | 386                    | 1995.05.02 | Ballard | JL, ACI | 082       | 95397    | R        | Y      | L        |                                  |
| 389                 | 387                    | 1995.05.02 | Ballard | JL, ACI | 082       | 95395    | R        | Y      | L        |                                  |
| 390                 | 388                    | 1995.05.02 | Ballard | JL, ACI | 082       | 95398    | R        | Y      | L        |                                  |
| 391                 | 389                    | 1995.05.02 | Ballard | JL, ACI | 082       | 95399    | R        | Y      | L        |                                  |
| 392                 | 390                    | 1995.05.02 | Ballard | JL, ACI | 082       | 95400    | R        | Y      | L        |                                  |
| 393                 | 391                    | 1995.05.02 | Ballard | JL, ACI | 082       | 95401    | R        | Y      | L        |                                  |
| 394                 | 392                    | 1995.05.02 | Ballard | JL, ACI | 082       | 95402    | R        | Y      | L        |                                  |
| 395                 | 393                    | 1995.05.02 | Ballard | JL, ACI | 082       | 95403    | R        | Y      | L        |                                  |
| 396                 | 394                    | 1995.05.02 | Ballard | JL, ACI | 082       | 95404    | R        | Y      | L        |                                  |
| 397                 | 395                    | 1995.05.02 | Ballard | JL, ACI | 082       | 95405    | R        | Y      | L        |                                  |
| 398                 | 396                    | 1995.05.02 | Ballard | JL, ACI | 082       | 95406    | R        | Y      | L        |                                  |
| 399                 | 397                    | 1995.05.02 | Ballard | JL, ACI | 082       | 95407    | R        | Y      | L        |                                  |
| 400                 | 398                    | 1995.05.02 | Ballard | JL, ACI | 082       | 95408    | R        | Y      | L        |                                  |
| 401                 | 399                    | 1995.05.02 | Ballard | JL, ACI | 082       | 95409    | R        | Y      | L        |                                  |
| 402                 | 400                    | 1995.05.02 | Ballard | JL, ACI | 082       | 95410    | R        | Y      | L        |                                  |
| 403                 | 401                    | 1995.05.02 | Ballard | JL, ACI | 082       | 95411    | R        | Y      | L        |                                  |
| 404                 | 402                    | 1995.05.02 | Ballard | JL, ACI | 082       | 95412    | R        | Y      | L        |                                  |
| 405                 | 403                    | 1995.05.02 | Ballard | JL, ACI | 082       | 95413    | R        | Y      | L        |                                  |
| 406                 | 404                    | 1995.05.02 | Ballard | JL, ACI | 082       | 95414    | R        | Y      | L        |                                  |
| 407                 | 405                    | 1995.05.02 | Ballard | JL, ACI | 082       | 95415    | R        | Y      | L        | Stopped at 1650hrs. ACh with us. |
| 408                 | 406                    | 1995.05.03 | Ballard | JL, ACI | 082       | 95416    | R        | Y      | L        | Started after 0906hrs.           |
| 409                 | 407                    | 1995.05.03 | Ballard | JL, ACI | 082       | 95417    | R        | Y      | L        |                                  |
| 410                 | 408                    | 1995.05.03 | Ballard | JL, ACI | 082       | 95418    | R        | Y      | L        |                                  |
| 411                 | 409                    | 1995.05.03 | Ballard | JL, ACI | 082       | 95419    | R        | Y      | L        |                                  |
| 412                 | 410                    | 1995.05.03 | Ballard | JL, ACI | 082       | 95420    | R        | N      |          |                                  |
| 413                 | 411                    | 1995.05.03 | Ballard | JL, ACI | 082       | 95421    | R        | Y      | L        |                                  |
| 414                 | 412                    | 1995.05.03 | Ballard | JL, ACI | 082       | 95422    | R        | Y      | L        |                                  |
| 415                 | 413                    | 1995.05.03 | Ballard | JL, ACI | 082       | 95423    | R        | Y      | L        |                                  |
| 416                 | 414                    | 1995.05.03 | Ballard | JL, ACI | 082       | 95424    | R        | Y      | L        |                                  |
| 417                 | 415                    | 1995.05.03 | Ballard | JL, ACI | 082       | 95425    | R        | Y      | L        |                                  |
| 418                 | 416                    | 1995.05.03 | Ballard | JL, ACI | 082       | 95426    | R        | Y      | L        |                                  |
| 419                 | 417                    | 1995.05.03 | Ballard | JL, ACI | 082       | 95427    | R        | Y      | L        |                                  |
| 420                 | 418                    | 1995.05.03 | Ballard | JL, ACI | 082       | 95428    | R        | Y      | L        |                                  |
| 421                 | 419                    | 1995.05.03 | Ballard | JL, ACI | 082       | 95429    | R        | Y      | L        |                                  |
| 422                 | 420                    | 1995.05.03 | Ballard | JL, ACI | 082       | 95430    | R        | Y      | L        |                                  |
| 423                 | 421                    | 1995.05.03 | Ballard | JL, ACI | 082       | 95431    | R        | Y      | L        |                                  |
| 424                 | 422                    | 1995.05.03 | Ballard | JL, ACI | 082       | 95432    | R        | Y      | L        |                                  |
| 425                 | 423                    | 1995.05.03 | Ballard | JL, ACI | 082       | 95433    | R        | Y      | L        |                                  |
| 426                 | 424                    | 1995.05.03 | Ballard | JL, ACI | 082       | 95434    | R        | Y      | L        |                                  |
| 427                 | 425                    | 1995.05.03 | Ballard | JL, ACI | 082       | 95435    | R        | Y      | L        |                                  |
| 428                 | 426                    | 1995.05.03 | Ballard | JL, ACI | 082       | 95436    | R        | Y      | L        |                                  |
| 429                 | 427                    | 1995.05.03 | Ballard | JL, ACI | 082       | 95437    | R        | Y      | L        |                                  |
| 430                 | 428                    | 1995.05.03 | Ballard | JL, ACI | 082       | 95438    | R        | Y      | L        |                                  |
| 431                 | 429                    | 1995.05.03 | Ballard | JL, ACI | 082       | 95439    | R        | Y      | L        |                                  |
| 432                 | 430                    | 1995.05.03 | Ballard | JL, ACI | 082       | 95440    | R        | Y      | L        |                                  |
| 433                 | 431                    | 1995.05.03 | Ballard | JL, ACI | 082       | 95441    | R        | Y      | L        |                                  |
| 434                 | 432                    | 1995.05.03 | Ballard | JL, ACI | 082       | 95442    | R        | Y      | L        |                                  |
| 435                 | 433                    | 1995.05.03 | Ballard | JL, ACI | 082       | 95443    | R        | Y      | L        |                                  |
| 436                 | 434                    | 1995.05.03 | Ballard | JL, ACI | 082       | 95444    | R        | Y      | L        |                                  |
| 437                 | 435                    | 1995.05.03 | Ballard | JL, ACI | 082       | 95445    | R        | Y      | L        |                                  |
| 438                 | 436                    | 1995.05.03 | Ballard | JL, ACI | 082       | 95446    | R        | Y      | L        |                                  |

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| Order of processing | Order of Bndg / Flgng | Date       | Lake    | Who by? | Band Prfx | Band No. | Band Leg | Flagd? | Flag Leg | Comment                                 |
|---------------------|-----------------------|------------|---------|---------|-----------|----------|----------|--------|----------|---|
| 439                 | 437                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95447    | R        | Y      | L        |   |
| 440                 | 438                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95448    | R        | Y      | L        |   |
| 441                 | 439                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95449    | R        | Y      | L        |   |
| 442                 | 440                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95450    | R        | Y      | L        |   |
| 443                 | 441                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95452    | R        | Y      | L        | Band 95451 missing & presumed not used. |
| 444                 | 442                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95453    | R        | Y      | L        |   |
| 445                 | 443                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95454    | R        | Y      | L        |   |
| 446                 | 444                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95455    | R        | Y      | L        |   |
| 447                 | 445                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95456    | R        | Y      | L        |   |
| 448                 | 446                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95457    | R        | Y      | L        |   |
| 449                 | 447                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95458    | R        | Y      | L        |   |
| 450                 | 448                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95459    | R        | Y      | L        |   |
| 451                 | 449                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95460    | R        | Y      | L        |   |
| 452                 | 450                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95461    | R        | Y      | L        |   |
| 453                 | 451                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95462    | R        | Y      | L        |   |
| 454                 | 452                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95463    | R        | Y      | L        |   |
| 455                 | 453                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95464    | R        | Y      | L        |   |
| 456                 | 454                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95465    | R        | Y      | L        |   |
| 457                 | 455                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95466    | R        | Y      | L        |   |
| 458                 | 456                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95467    | R        | Y      | L        |   |
| 459                 | 457                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95468    | R        | Y      | L        |   |
| 460                 | 458                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95469    | R        | Y      | L        |   |
| 461                 | 459                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95470    | R        | Y      | L        |   |
| 462                 | 460                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95471    | R        | Y      | L        |   |
| 463                 | 461                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95472    | R        | Y      | L        |   |
| 464                 | 462                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95473    | R        | Y      | L        |   |
| 465                 | 463                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95474    | R        | Y      | L        |   |
| 466                 | 464                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95475    | R        | Y      | L        | Stopped before 1210hrs.                 |
| 467                 | 465                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95476    | R        | Y      | L        | Re-started after 1300hrs.               |
| 468                 | 466                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95477    | R        | Y      | L        |   |
| 469                 | 467                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95478    | R        | Y      | L        |   |
| 470                 | 468                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95479    | R        | Y      | L        |   |
| 471                 | 469                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95480    | R        | Y      | L        |   |
| 472                 | 470                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95481    | R        | Y      | L        |   |
| 473                 | 471                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95482    | R        | Y      | L        |   |
| 474                 | 472                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95483    | R        | Y      | L        |   |
| 475                 | 473                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95484    | R        | Y      | L        |   |
| 476                 | 474                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95485    | R        | Y      | L        |   |
| 477                 | 475                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95486    | R        | Y      | L        |   |
| 478                 | 476                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95487    | R        | Y      | L        |   |
| 479                 | 477                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95488    | R        | Y      | L        |   |
| 480                 | 478                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95489    | R        | Y      | L        |   |
| 481                 | 479                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95490    | R        | Y      | L        |   |
| 482                 | 480                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95491    | R        | Y      | L        |   |
| 483                 | 481                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95492    | R        | Y      | L        |   |
| 484                 | 482                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95493    | R        | Y      | L        |   |
| 485                 | 483                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95494    | R        | Y      | L        |   |
| 486                 | 484                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95495    | R        | Y      | L        |   |
| 487                 | 485                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95496    | R        | Y      | L        |   |
| 488                 | 486                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95497    | R        | Y      | L        |   |
| 489                 | 487                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95498    | R        | Y      | L        |   |
| 490                 | 488                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95499    | R        | Y      | L        |   |
| 491                 | 489                   | 1995.05.03 | Ballard | JL, ACI | 082       | 95500    | R        | Y      | L        |   |
| 492                 | 490                   | 1995.05.03 | Ballard | JL, ACI |           | Not bndd |          | Y      | L        | Start 4 flagged only.                   |
| 493                 | 491                   | 1995.05.03 | Ballard | JL, ACI |           | Not bndd |          | Y      | L        |   |
| 494                 | 492                   | 1995.05.03 | Ballard | JL, ACI |           | Not bndd |          | Y      | L        |   |

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| Order of processing | Order of Bndng / Flng | Date       | Lake    | Who by?       | Band Prfx | Band No. | Band Leg | Flagd? | Flag Leg | Comment  |
|---------------------|-----------------------|------------|---------|---------------|-----------|----------|----------|--------|----------|--|
| 495                 | 493                   | 1995.05.03 | Ballard | JL, ACI       |           | Not bndd |          | Y      | L        | End 4 flagged only<br>1505hrs. Start 3 flagged only. |
| 496                 | 494                   | 1995.05.03 | Ballard | JL, ACI       |           | Not bndd |          | Y      | L        |  |
| 497                 | 495                   | 1995.05.03 | Ballard | JL, ACI       |           | Not bndd |          | Y      | L        |  |
| 498                 | 496                   | 1995.05.03 | Ballard | JL, ACI       |           | Not bndd |          | Y      | L        | End 3 flagged only.                                  |
| 499                 | 497                   | 1995.05.03 | Ballard | JL, ACI       |           | Not bndd |          | Y      | L        | Start 10 flagged only.                               |
| 500                 | 498                   | 1995.05.03 | Ballard | JL, ACI       |           | Not bndd |          | Y      | L        |  |
| 501                 | 499                   | 1995.05.03 | Ballard | JL, ACI       |           | Not bndd |          | Y      | L        |  |
| 502                 | 500                   | 1995.05.03 | Ballard | JL, ACI       |           | Not bndd |          | Y      | L        |  |
| 503                 | 501                   | 1995.05.03 | Ballard | JL, ACI       |           | Not bndd |          | Y      | L        |  |
| 504                 | 502                   | 1995.05.03 | Ballard | JL, ACI       |           | Not bndd |          | Y      | L        |  |
| 505                 | 503                   | 1995.05.03 | Ballard | JL, ACI       |           | Not bndd |          | Y      | L        |  |
| 506                 | 504                   | 1995.05.03 | Ballard | JL, ACI       |           | Not bndd |          | Y      | L        |  |
| 507                 | 505                   | 1995.05.03 | Ballard | JL, ACI       |           | Not bndd |          | Y      | L        |  |
| 508                 | 506                   | 1995.05.03 | Ballard | JL, ACI       |           | Not bndd |          | Y      | L        | End 10 flagged only.<br>Stopped before 1610hrs.      |
| 509                 | 507                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95501    | L        | Y      | R        | Started before 0930hrs.                              |
| 510                 | 508                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95502    | L        | Y      | R        |  |
| 511                 | 509                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95503    | L        | Y      | R        |  |
| 512                 | 510                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95504    | L        | Y      | R        |  |
| 513                 | 511                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95505    | L        | Y      | R        | 0930hrs.   |
| 514                 | 512                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95506    | L        | Y      | R        |  |
| 515                 | 513                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95507    | L        | Y      | R        |  |
| 516                 | 514                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95508    | L        | Y      | R        |  |
| 517                 | 515                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95509    | L        | Y      | R        |  |
| 518                 | 516                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95510    | L        | Y      | R        |  |
| 519                 | 517                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95511    | L        | Y      | R        |  |
| 520                 | 518                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95512    | L        | Y      | R        |  |
| 521                 | 519                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95513    | L        | Y      | R        |  |
| 522                 | 520                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95514    | L        | Y      | R        |  |
| 523                 | 521                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95515    | L        | Y      | R        |  |
| 524                 | 522                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95516    | L        | Y      | R        |  |
| 525                 | 523                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95517    | L        | Y      | R        |  |
| 526                 | 524                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95518    | L        | Y      | R        |  |
| 527                 | 525                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95519    | L        | Y      | R        | 1011hrs?   |
| 528                 | 526                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95520    | L        | Y      | R        |  |
| 529                 | 527                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95521    | L        | Y      | R        |  |
| 530                 | 528                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95522    | L        | Y      | R        |  |
| 531                 | 529                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95523    | L        | Y      | R        |  |
| 532                 | 530                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95524    | L        | Y      | R        |  |
| 533                 | 531                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95525    | L        | Y      | R        |  |
| 534                 | 532                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95526    | L        | Y      | R        |  |
| 535                 | 533                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95527    | L        | Y      | R        |  |
| 536                 | 534                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95528    | L        | Y      | R        |  |
| 537                 | 535                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95529    | L        | Y      | R        |  |
| 538                 | 536                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95530    | L        | Y      | R        |  |
| 539                 | 537                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95531    | L        | Y      | R        |  |
| 540                 | 538                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95532    | L        | Y      | R        |  |
| 541                 | 539                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95533    | L        | Y      | R        |  |
| 542                 | 540                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95534    | L        | Y      | R        |  |
| 543                 | 541                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95535    | L        | Y      | R        |  |
| 544                 | 542                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95536    | L        | Y      | R        |  |
| 545                 | 543                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95537    | L        | Y      | R        |  |
| 546                 | 544                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95538    | L        | Y      | R        |  |
| 547                 | 545                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95539    | L        | Y      | R        |  |
| 548                 | 546                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95540    | L        | Y      | R        |  |
| 549                 | 547                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95541    | L        | Y      | R        |  |

| Order of processing | Order of Bndng / Flgng | Date       | Lake    | Who by?       | Band Prfx | Band No. | Band Leg | Flagd? | Flag Leg | Comment  |
|---------------------|------------------------|------------|---------|---------------|-----------|----------|----------|--------|----------|----------|
| 550                 | 548                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95542    | L        | Y      | R        |          |
| 551                 | 549                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95543    | L        | Y      | R        |          |
| 552                 | 550                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95544    | L        | Y      | R        |          |
| 553                 | 551                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95545    | L        | Y      | R        |          |
| 554                 | 552                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95546    | L        | Y      | R        |          |
| 555                 | 553                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95547    | L        | Y      | R        |          |
| 556                 | 554                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95548    | L        | Y      | R        |          |
| 557                 | 555                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95549    | L        | Y      | R        |          |
| 558                 | 556                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95550    | L        | Y      | R        |          |
| 559                 | 557                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95551    | L        | Y      | R        |          |
| 560                 | 558                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95552    | L        | Y      | R        |          |
| 561                 | 559                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95553    | L        | Y      | R        |          |
| 562                 | 560                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95554    | L        | Y      | R        |          |
| 563                 | 561                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95555    | L        | Y      | R        |          |
| 564                 | 562                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95556    | L        | Y      | R        |          |
| 565                 | 563                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95557    | L        | Y      | R        |          |
| 566                 | 564                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95558    | L        | Y      | R        |          |
| 567                 | 565                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95559    | L        | Y      | R        |          |
| 568                 | 566                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95560    | L        | Y      | R        |          |
| 569                 | 567                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95561    | L        | Y      | R        |          |
| 570                 | 568                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95562    | L        | Y      | R        |          |
| 571                 | 569                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95563    | L        | Y      | R        |          |
| 572                 | 570                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95564    | L        | Y      | R        |          |
| 573                 | 571                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95565    | L        | Y      | R        |          |
| 574                 | 572                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95566    | L        | Y      | R        |          |
| 575                 | 573                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95567    | L        | Y      | R        |          |
| 576                 | 574                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95568    | L        | Y      | R        |          |
| 577                 | 575                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95569    | L        | Y      | R        |          |
| 578                 | 576                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95570    | L        | Y      | R        |          |
| 579                 | 577                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95571    | L        | Y      | R        |          |
| 580                 | 578                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95572    | L        | Y      | R        |          |
| 581                 | 579                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95573    | L        | Y      | R        |          |
| 582                 | 580                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95574    | L        | Y      | R        |          |
| 583                 | 581                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95575    | L        | Y      | R        |          |
| 584                 | 582                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95576    | L        | Y      | R        |          |
| 585                 | 583                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95577    | L        | Y      | R        |          |
| 586                 | 584                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95578    | L        | Y      | R        |          |
| 587                 | 585                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95579    | L        | Y      | R        |          |
| 588                 | 586                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95580    | L        | Y      | R        |          |
| 589                 | 587                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95581    | L        | Y      | R        |          |
| 590                 | 588                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95582    | L        | Y      | R        |          |
| 591                 | 589                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95583    | L        | Y      | R        |          |
| 592                 | 590                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95584    | L        | Y      | R        |          |
| 593                 | 591                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95585    | L        | Y      | R        |          |
| 594                 | 592                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95586    | L        | Y      | R        |          |
| 595                 | 593                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95587    | L        | Y      | R        |          |
| 596                 | 594                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95588    | L        | Y      | R        |          |
| 597                 | 595                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95589    | L        | Y      | R        |          |
| 598                 | 596                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95590    | L        | Y      | R        |          |
| 599                 | 597                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95591    | L        | Y      | R        |          |
| 600                 | 598                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95592    | L        | Y      | R        |          |
| 601                 | 599                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95593    | L        | Y      | R        |          |
| 602                 | 600                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95594    | L        | Y      | R        |          |
| 603                 | 601                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95595    | L        | Y      | R        |          |
| 604                 | 602                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95596    | L        | Y      | R        |          |
| 605                 | 603                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95597    | L        | Y      | R        |          |
| 606                 | 604                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95598    | L        | Y      | R        | 1148hrs. |

12.

| Order of processing | Order of Bndng / Flng | Date       | Lake    | Who by?       | Band Prfx | Band No. | Band Leg | Flagd? | Flag Leg | Comment           |
|---------------------|-----------------------|------------|---------|---------------|-----------|----------|----------|--------|----------|-------------------|
| 607                 | 605                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95599    | L        | Y      | R        |                   |
| 608                 | 606                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95600    | L        | Y      | R        |                   |
| 609                 | 607                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95601    | L        | Y      | R        |                   |
| 610                 | 608                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95602    | L        | Y      | R        |                   |
| 611                 | 609                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95603    | L        | Y      | R        |                   |
| 612                 | 610                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95604    | L        | Y      | R        |                   |
| 613                 | 611                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95605    | L        | Y      | R        |                   |
| 614                 | 612                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95606    | L        | Y      | R        | 1223hrs stop.     |
| 615                 | 613                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95607    | L        | Y      | R        | 1250hrs re-start. |
| 616                 | 614                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95608    | L        | Y      | R        |                   |
| 617                 | 615                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95609    | L        | Y      | R        |                   |
| 618                 | 616                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95610    | L        | Y      | R        |                   |
| 619                 | 617                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95611    | L        | Y      | R        |                   |
| 620                 | 618                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95612    | L        | Y      | R        |                   |
| 621                 | 619                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95613    | L        | Y      | R        |                   |
| 622                 | 620                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95614    | L        | Y      | R        |                   |
| 623                 | 621                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95615    | L        | Y      | R        |                   |
| 624                 | 622                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95616    | L        | Y      | R        |                   |
| 625                 | 623                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95617    | L        | Y      | R        |                   |
| 626                 | 624                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95618    | L        | Y      | R        |                   |
| 627                 | 625                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95619    | L        | Y      | R        |                   |
| 628                 | 626                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95620    | L        | Y      | R        |                   |
| 629                 | 627                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95621    | L        | Y      | R        |                   |
| 630                 | 628                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95622    | L        | Y      | R        |                   |
| 631                 | 629                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95623    | L        | Y      | R        |                   |
| 632                 | 630                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95624    | L        | Y      | R        |                   |
| 633                 | 631                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95625    | L        | Y      | R        |                   |
| 634                 | 632                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95626    | L        | Y      | R        |                   |
| 635                 | 633                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95627    | L        | Y      | R        |                   |
| 636                 | 634                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95628    | L        | Y      | R        |                   |
| 637                 | 635                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95629    | L        | Y      | R        |                   |
| 638                 | 636                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95630    | L        | Y      | R        |                   |
| 639                 | 637                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95631    | L        | Y      | R        |                   |
| 640                 | 638                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95632    | L        | Y      | R        |                   |
| 641                 | 639                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95633    | L        | Y      | R        |                   |
| 642                 | 640                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95634    | L        | Y      | R        |                   |
| 643                 | 641                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95635    | L        | Y      | R        |                   |
| 644                 | 642                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95636    | L        | Y      | R        |                   |
| 645                 | 643                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95637    | L        | Y      | R        | 1317hrs.          |
| 646                 | 644                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95638    | L        | Y      | R        |                   |
| 647                 | 645                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95639    | L        | Y      | R        |                   |
| 648                 | 646                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95640    | L        | Y      | R        |                   |
| 649                 | 647                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95641    | L        | Y      | R        |                   |
| 650                 | 648                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95642    | L        | Y      | R        |                   |
| 651                 | 649                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95643    | L        | Y      | R        |                   |
| 652                 | 650                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95644    | L        | Y      | R        |                   |
| 653                 | 651                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95645    | L        | Y      | R        |                   |
| 654                 | 652                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95646    | L        | Y      | R        |                   |
| 655                 | 653                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95647    | L        | Y      | R        |                   |
| 656                 | 654                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95648    | L        | Y      | R        |                   |
| 657                 | 655                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95649    | L        | Y      | R        |                   |
| 658                 | 656                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95650    | L        | Y      | R        |                   |
| 659                 | 657                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95651    | L        | Y      | R        |                   |
| 660                 | 658                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95652    | L        | Y      | R        |                   |
| 661                 | 659                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95653    | L        | Y      | R        |                   |
| 662                 | 660                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95654    | L        | Y      | R        |                   |
| 663                 | 661                   | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95655    | L        | Y      | R        |                   |

| Order of processing | Order of Bndng / Flgng | Date       | Lake    | Who by?       | Band Prfx | Band No. | Band Leg | Flagd? | Flag Leg | Comment  |
|---------------------|------------------------|------------|---------|---------------|-----------|----------|----------|--------|----------|----------|
| 664                 | 662                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95656    | L        | Y      | R        |          |
| 665                 | 663                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95657    | L        | Y      | R        |          |
| 666                 | 664                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95658    | L        | Y      | R        |          |
| 667                 | 665                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95659    | L        | Y      | R        |          |
| 668                 | 666                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95660    | L        | Y      | R        |          |
| 669                 | 667                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95661    | L        | Y      | R        |          |
| 670                 | 668                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95662    | L        | Y      | R        |          |
| 671                 | 669                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95663    | L        | Y      | R        |          |
| 672                 | 670                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95664    | L        | Y      | R        |          |
| 673                 | 671                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95665    | L        | Y      | R        |          |
| 674                 | 672                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95666    | L        | Y      | R        |          |
| 675                 | 673                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95667    | L        | Y      | R        |          |
| 676                 | 674                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95668    | L        | Y      | R        |          |
| 677                 | 675                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95669    | L        | Y      | R        | 1416hrs. |
| 678                 | 676                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95670    | L        | Y      | R        | 1423hrs. |
| 679                 | 677                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95671    | L        | Y      | R        |          |
| 680                 | 678                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95672    | L        | Y      | R        |          |
| 681                 | 679                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95673    | L        | Y      | R        |          |
| 682                 | 680                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95674    | L        | Y      | R        |          |
| 683                 | 681                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95675    | L        | Y      | R        |          |
| 684                 | 682                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95676    | L        | Y      | R        |          |
| 685                 | 683                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95677    | L        | Y      | R        |          |
| 686                 | 684                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95678    | L        | Y      | R        |          |
| 687                 | 685                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95679    | L        | Y      | R        |          |
| 688                 | 686                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95680    | L        | Y      | R        |          |
| 689                 | 687                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95681    | L        | Y      | R        |          |
| 690                 | 688                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95682    | L        | Y      | R        |          |
| 691                 | 689                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95683    | L        | Y      | R        |          |
| 692                 | 690                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95684    | L        | Y      | R        |          |
| 693                 | 691                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95685    | L        | Y      | R        |          |
| 694                 | 692                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95686    | L        | Y      | R        |          |
| 695                 | 693                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95687    | L        | Y      | R        |          |
| 696                 | 694                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95688    | L        | Y      | R        |          |
| 697                 | 695                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95689    | L        | Y      | R        |          |
| 698                 | 696                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95690    | L        | Y      | R        |          |
| 699                 | 697                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95691    | L        | Y      | R        |          |
| 700                 | 698                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95692    | L        | Y      | R        |          |
| 701                 | 699                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95693    | L        | Y      | R        |          |
| 702                 | 700                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95694    | L        | Y      | R        | 1443hrs. |
| 703                 | 701                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95695    | L        | Y      | R        |          |
| 704                 | 702                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95696    | L        | Y      | R        |          |
| 705                 | 703                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95697    | L        | Y      | R        |          |
| 706                 | 704                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95698    | L        | Y      | R        |          |
| 707                 | 705                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95699    | L        | Y      | R        |          |
| 708                 | 706                    | 1995.06.11 | Marmion | GBP, ACI, ACh | 082       | 95700    | L        | Y      | R        |          |
| 709                 | 707                    | 1995.06.11 | Marmion | GBP, ACI, ACh |           | Not bndd |          | Y      | R        |          |
| 710                 | 708                    | 1995.06.11 | Marmion | GBP, ACI, ACh |           | Not bndd |          | Y      | R        |          |
| 711                 | 709                    | 1995.06.11 | Marmion | GBP, ACI, ACh |           | Not bndd |          | Y      | R        |          |
| 712                 | 710                    | 1995.06.11 | Marmion | GBP, ACI, ACh |           | Not bndd |          | Y      | R        |          |
| 713                 | 711                    | 1995.06.11 | Marmion | GBP, ACI, ACh |           | Not bndd |          | Y      | R        |          |
| 714                 | 712                    | 1995.06.11 | Marmion | GBP, ACI, ACh |           | Not bndd |          | Y      | R        |          |
| 715                 | 713                    | 1995.06.11 | Marmion | GBP, ACI, ACh |           | Not bndd |          | Y      | R        |          |
| 716                 | 714                    | 1995.06.11 | Marmion | GBP, ACI, ACh |           | Not bndd |          | Y      | R        |          |
| 717                 | 715                    | 1995.06.11 | Marmion | GBP, ACI, ACh |           | Not bndd |          | Y      | R        |          |
| 718                 | 716                    | 1995.06.11 | Marmion | GBP, ACI, ACh |           | Not bndd |          | Y      | R        |          |
| 719                 | 717                    | 1995.06.11 | Marmion | GBP, ACI, ACh |           | Not bndd |          | Y      | R        |          |
| 720                 | 718                    | 1995.06.11 | Marmion | GBP, ACI, ACh |           | Not bndd |          | Y      | R        |          |

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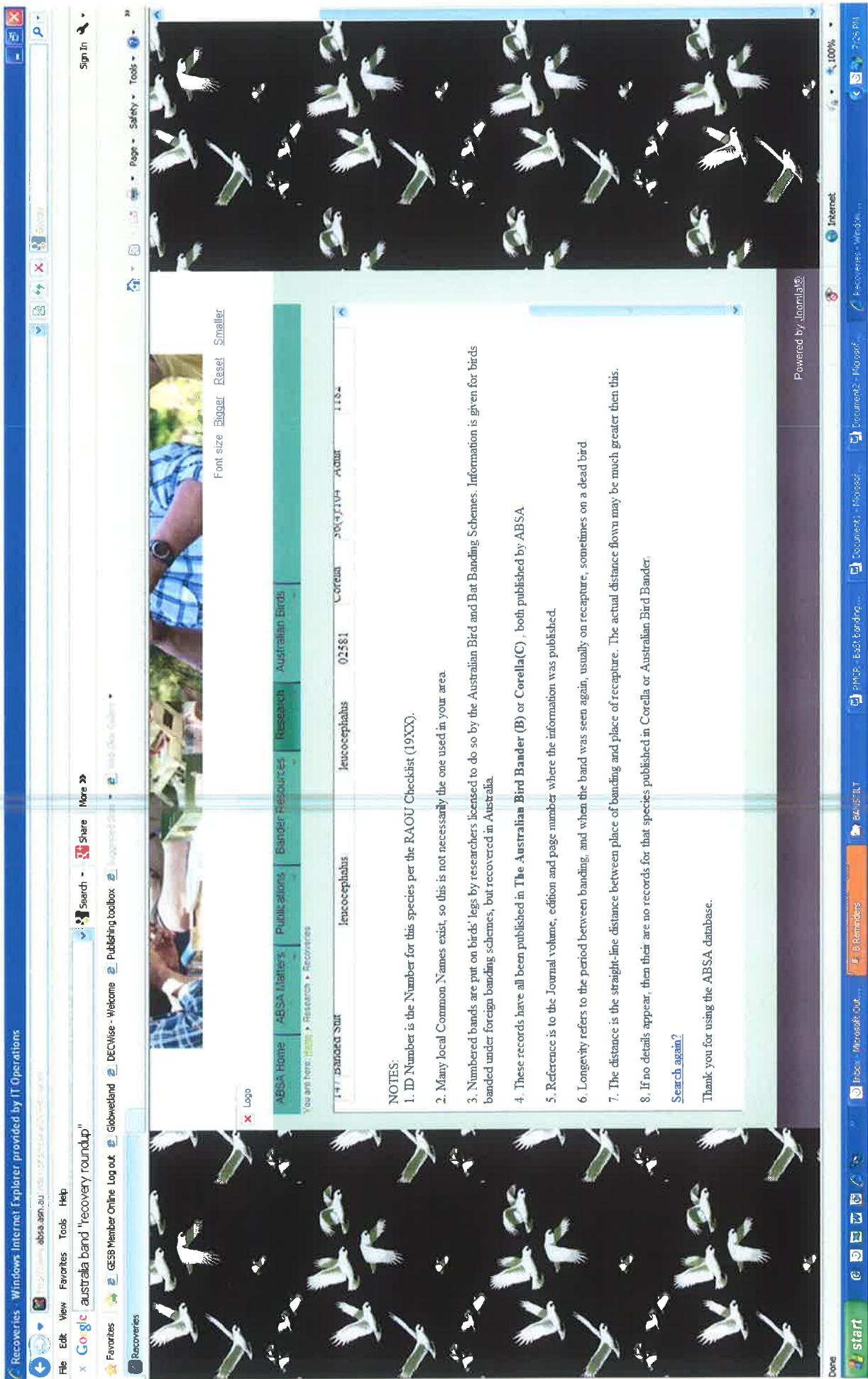
| Order of processing | Order of Bndng / Flgng | Date       | Lake    | Who by?        | Band Prfx | Band No. | Band Leg | Flagd? | Flag Leg | Comment  |
|---------------------|------------------------|------------|---------|----------------|-----------|----------|----------|--------|----------|--|
| 721                 | 719                    | 1995.06.11 | Marmion | GBP, ACI, ACCh |           | Not bndd |          | Y      | R        | 1507hrs. '... said bndd lft & flgd rt at Ballard. Check with Cive'. '[11Jun] bndd 200 lft, flgd 195 rt'. |
| 722                 | 720                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        | Start 0900hrs.   |
| 723                 | 721                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 724                 | 722                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 725                 | 723                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 726                 | 724                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 727                 | 725                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 728                 | 726                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 729                 | 727                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 730                 | 728                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 731                 | 729                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 732                 | 730                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 733                 | 731                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 734                 | 732                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 735                 | 733                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 736                 | 734                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 737                 | 735                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 738                 | 736                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 739                 | 737                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 740                 | 738                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 741                 | 739                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 742                 | 740                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 743                 | 741                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 744                 | 742                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 745                 | 743                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 746                 | 744                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 747                 | 745                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 748                 | 746                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 749                 | 747                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 750                 | 748                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 751                 | 749                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        | 'Flgd lft tibia 30 chicks'.  |
| 752                 | 750                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        | Started flagging 5 chicks.   |
| 753                 | 751                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 754                 | 752                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 755                 | 753                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 756                 | 754                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        | Finish flagging 5 chicks.  |
| 757                 | 755                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        | Started flagging 26 chicks.  |
| 758                 | 756                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 759                 | 757                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 760                 | 758                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 761                 | 759                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 762                 | 760                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 763                 | 761                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 764                 | 762                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 765                 | 763                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 766                 | 764                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 767                 | 765                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 768                 | 766                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 769                 | 767                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 770                 | 768                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 771                 | 769                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |
| 772                 | 770                    | 1995.06.12 | Marmion | GBP, ACI       |           | Not bndd |          | Y      | L        |  |

| Order of processing | Order of Bndng / Flgng | Date       | Lake    | Who by?  | Band Prfx | Band No. | Band Leg | Flagd? | Flag Leg | Comment                               |
|---------------------|------------------------|------------|---------|----------|-----------|----------|----------|--------|----------|---------------------------------------|
| 773                 | 771                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 774                 | 772                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 775                 | 773                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 776                 | 774                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 777                 | 775                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 778                 | 776                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 779                 | 777                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 780                 | 778                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 781                 | 779                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 782                 | 780                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        | Finish flagging 26 chicks at 0956hrs. |
| 783                 | 781                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        | Start release of 23 chicks.           |
| 784                 | 782                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 785                 | 783                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 786                 | 784                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 787                 | 785                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 788                 | 786                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 789                 | 787                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 790                 | 788                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 791                 | 789                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 792                 | 790                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 793                 | 791                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 794                 | 792                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 795                 | 793                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 796                 | 794                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 797                 | 795                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 798                 | 796                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 799                 | 797                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 800                 | 798                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 801                 | 799                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 802                 | 800                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 803                 | 801                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 804                 | 802                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 805                 | 803                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        | End release of 23 chicks.             |
| 806                 | 804                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        | Start release of 6 chicks.            |
| 807                 | 805                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 808                 | 806                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 809                 | 807                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 810                 | 808                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 811                 | 809                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        | End release of 6 chicks at 1043hrs.   |
| 812                 | 810                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        | Start catch of 22 chicks.             |
| 813                 | 811                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 814                 | 812                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 815                 | 813                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 816                 | 814                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 817                 | 815                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 818                 | 816                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 819                 | 817                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 820                 | 818                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 821                 | 819                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 822                 | 820                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 823                 | 821                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 824                 | 822                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 825                 | 823                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |
| 826                 | 824                    | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                                       |

| Order of proc-ssing | Order of Bndng / Flng | Date       | Lake    | Who by?  | Band Prfx | Band No. | Band Leg | Flagd? | Flag Leg | Comment                     |
|---------------------|-----------------------|------------|---------|----------|-----------|----------|----------|--------|----------|-----------------------------|
| 827                 | 825                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 828                 | 826                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 829                 | 827                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 830                 | 828                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 831                 | 829                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 832                 | 830                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 833                 | 831                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        | End catch of 22 chicks.     |
| 834                 | 832                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        | Start catch of 9 chicks.    |
| 835                 | 833                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 836                 | 834                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 837                 | 835                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 838                 | 836                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 839                 | 837                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 840                 | 838                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 841                 | 839                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 842                 | 840                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        | End catch of 9 chicks.      |
| 843                 | 841                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        | Start '25 mixed ages'.      |
| 844                 | 842                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 845                 | 843                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 846                 | 844                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 847                 | 845                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 848                 | 846                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 849                 | 847                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 850                 | 848                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 851                 | 849                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 852                 | 850                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 853                 | 851                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 854                 | 852                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 855                 | 853                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 856                 | 854                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 857                 | 855                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 858                 | 856                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 859                 | 857                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 860                 | 858                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 861                 | 859                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 862                 | 860                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 863                 | 861                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 864                 | 862                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 865                 | 863                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 866                 | 864                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        | End '25 mixed ages'.        |
| 867                 | 865                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        | 1456hrs. '12 flags left'.   |
| 868                 | 866                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        | Start use of last 12 flags. |
| 869                 | 867                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 870                 | 868                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 871                 | 869                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 872                 | 870                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 873                 | 871                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 874                 | 872                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 875                 | 873                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 876                 | 874                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 877                 | 875                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 878                 | 876                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        |                             |
| 879                 | 877                   | 1995.06.12 | Marmion | GBP, ACI |           | Not bndd |          | Y      | L        | End use of 12 last flags.   |

This is the last page *R 01/02/14*

**'Print Screens' and a 'copy-paste' of the results of an enquiry made by JL (on 03/02/2014) of Banded Stilt band recoveries as available on-line from the Australian Bird Study Association website. Only 2 records were available. A Longevity record of 11 years 3 months and a Distance Travelled record of 1182 km. The reference for these was Corella 36(4):104, a copy of which is attached. Note that this was a year 2012 issue of 'Corella'. Check all issues of 'Corella' from 1995 to 2014 for other recoveries (& sightings?) of BaSt chicks banded and/or flagged at Lakes Ballard and Marmion in 1995.**



Recoveries - Windows Internet Explorer, provided by IT Operations

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Here is the information about the longest time between banding and recapture of a(n) Banded Stilt

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147 Banded Stilt

| ID  | Common Name  | Other Common Names | Scientific Name at Date of Banding | Note | Current Scientific Name            | Band Number | Published in: | Reference | Age when banded | Longevity (years,months) |
|-----|--------------|--------------------|------------------------------------|------|------------------------------------|-------------|---------------|-----------|-----------------|--------------------------|
| 147 | Banded Stilt |                    | <i>Cladorhynchus leucocephalus</i> |      | <i>Cladorhynchus leucocephalus</i> | 083-02581   | Corella       | 36(4):104 | Adult           | 11.03                    |

The following results are for the Banded Stilt that has travelled the longest distance between banding and recapture:

| ID  | Common Name  | Other Common Names | Scientific Name at Date of Banding | Note | Current Scientific Name            | Band Number | Published in: | Reference | Age when banded | Distance travelled (kms) |
|-----|--------------|--------------------|------------------------------------|------|------------------------------------|-------------|---------------|-----------|-----------------|--------------------------|
| 147 | Banded Stilt |                    | <i>Cladorhynchus leucocephalus</i> |      | <i>Cladorhynchus leucocephalus</i> | 083-02581   | Corella       | 36(4):104 | Adult           | 1182                     |

NOTES:

1. ID Number is the Number for this species per the RAOU Checklist (19XX).

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Here is the information about the longest time between banding and recapture of a(n) Banded Stilt:

| ID  | Common Name  | Other Common Names | Scientific Name at Date of Banding | Note | Current Scientific Name     | Band Number | Published in: | Reference | Age when banded | Longevity (years.months) |
|-----|--------------|--------------------|------------------------------------|------|-----------------------------|-------------|---------------|-----------|-----------------|--------------------------|
| 147 | Banded Stilt |                    | Cladorhynchus leucocephalus        |      | Cladorhynchus leucocephalus | 083-02581   | Corella       | 36(4):104 | Adult           | 11.03                    |

The following results are for the Banded Stilt that has travelled the longest distance between banding and recapture:

| ID  | Common Name  | Other Common Names | Scientific Name at Date of Banding | Note | Current Scientific Name     | Band Number | Published in: | Reference | Age when banded | Distance travelled (kms) |
|-----|--------------|--------------------|------------------------------------|------|-----------------------------|-------------|---------------|-----------|-----------------|--------------------------|
| 147 | Banded Stilt |                    | Cladorhynchus leucocephalus        |      | Cladorhynchus leucocephalus | 083-02581   | Corella       | 36(4):104 | Adult           | 1182                     |

### NOTES:

1. ID Number is the Number for this species per the RAOU Checklist (19XX).
2. Many local Common Names exist, so this is not necessarily the one used in your area.
3. Numbered bands are put on birds' legs by researchers licensed to do so by the Australian Bird and Bat Banding Schemes. Information is given for birds banded under foreign banding schemes, but recovered in Australia.
4. These records have all been published in **The Australian Bird Bander (B)** or **Corella(C)** , both published by ABSA.
5. Reference is to the Journal volume, edition and page number where the information was published.

6. Longevity refers to the period between banding, and when the band was seen again, usually on recapture, sometimes on a dead bird.
7. The distance is the straight-line distance between place of banding and place of recapture. The actual distance flown may be much greater than this.
8. If no details appear, then there are no records for that species published in Corella or Australian Bird Bander.

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Thank you for using the ABSA database.



# RECOVERY ROUND-UP

This section is prepared with the co-operation of the Secretary, Australian Bird and Bat Banding Schemes, Australian Nature Conservation Agency. The recoveries are only a selection of the thousands received each year; they are not a complete list and should not be analysed in full or part without prior consent of the banders concerned. Longevity and distance records refer to the ABBBS unless otherwise stated. The distance is the shortest distance in kilometres along the direct line joining the place of banding and recovery; the compass direction refers to the same direct line. (There is no implication regarding the distance flown or the route followed by the bird). Where available ABBBS age codes have been included in the banding data.

Recovery or longevity items may be submitted directly to me whereupon their merits for inclusion will be considered.

Hon. Editor

The following abbreviations appear in this issue:

AWSG – Australasian Wader Study Group.

NSWNPWSP – NSW National Parks and Wildlife Service Seabird Project  
VWSG – Victorian Wader Study Group.

## Brown Booby *Sula leucogaster*

121-16818. Nestling banded by B.R. King on Raine Island, Qld. on 21 Dec. 1984. Recaptured, released alive with band at banding place by S. Taylor on 6 Dec. 2009, over 24 years, 11 months after banding.

(This is the oldest recorded for the species.)

## Banded Stilt *Cladorhynchus leucocephalus*

083-02581. (plus Leg Flag Orange). Adult (2+) banded by VWSG at Werribee Sewerage Farm (Spit, Point Wilson), Vic. on 28 Dec. 2000. Band number read in field, (bird not trapped) at Central Island, Middle of Lake Eyre South, SA by K. Onton on 8 April 2012, over 11 years 3 months after banding. 1182 km NW.

(This is the oldest and longest movement recorded for the species.)

## Bar-tailed Godwit *Limosa lapponica*

073-63725. Adult (2) banded by VWSG off Mans Beach, Corner Inlet, Vic. (38°41'00"S 146°50'00"E) on 28 June 2010. Recovered dead (shot for food or sport) at Odooptu Bay, Northern Sakhalin, Russia (53°23'32"N 143°06'53"E) on 6 May 2012. 10 241 km N.

## Fairy Tern *Sternula nereis*

Leg Flag Pale (Lime) Green. Juvenile banded as part of a cohort by D. McKay under the NSW NPWSP at Tathra, NSW on 5 Jan. 2012. Colour marking sighted in field (cohort only) at Kirk Point, near Western Treatment Plant, Vic. by R. Ganly & C. Morley on 17 Feb. 2012. 501 km SW.

## Superb Fairy-wren *Malurus cyaneus*

018-51640. Juvenile banded by L.W. Filewood at Scheyville National Park near Windsor, NSW on 15 Feb. 2004. Recaptured, released alive with band at banding place nine times, the last occasion by K. Gover on 20 May 2012, over 9 years, 3 months after banding.

## White-browed Scrubwren *Sericornis frontalis*

023-47761. Adult (1+) banded by J. Hardy at Munghorn Gap Nature Reserve near Mudgee, NSW on 26 Jan. 2001. Recaptured, released alive with band at banding place four times the last occasion by J. Farrell on 2 Oct. 2011, over 10 years, 8 months after banding.

(The bird was also banded with band no. 025-95997.)

## Striated Thornbill *Acanthiza lineata*

018-00338. Adult (1+) banded by R. & R. Jacobs at Munghorn Gap Nature Reserve near Mudgee, NSW on 25 Jan. 1997. Recaptured, released alive with band at banding place five times the last occasion by G. Fry on 29 Dec. 2010, over 13 years, 11 months after banding

(The bird was also banded with band no. 018-87741.)

018-47564. Adult (1+) banded by R. & R. Jacobs at Munghorn Gap Nature Reserve near Mudgee, NSW on 15 Sep. 2001. Recaptured, released alive with band at banding place five times the last occasion by G. Fry on 2 Sep. 2011, over 9 years, 11 months after banding  
(The bird was also banded with band no. 018-57294.)

## Eastern Spinebill *Acanthorhynchus tenuirostris*

019-20411. Adult (1+) female banded by A.J. Leishman at Munghorn Gap Nature Reserve near Mudgee, NSW on 24 April 2005. Recaptured, released alive with band at banding place three times the last occasion by R. & R. Jacobs on 2 Oct. 2011, over 6 years, 5 months after banding

## White-cheeked Honeyeater *Phylidonyris niger*

035-44267. Juvenile banded by D. McKay at Agnes Banks Nature Reserve near Windsor, NSW on 12 May 2002. Recaptured (as adult male), released alive with band at banding place twice the last occasion by C. Scholz, on 14 Oct. 2012 over 10 years 5 months after banding.

## White-browed Babbler *Pomatosomus superciliosus*

052-12907. Adult (1+) banded by G. Fry at Warraderry State Forest near Grenfell, NSW on 17 Sep. 2005. Recaptured, released alive with band at banding place twice the last occasion on 19 Aug. 2011, over 5 years, 11 month after banding.

(The bird was also banded with band no. 052-12952.)

## Australasian Figbird *Sphecotheres vieilloti*

071-98113. Adult (2+) banded by G. P. Clancy on Susan Island, Grafton, NSW on 29 Oct. 1998. Recaptured, released alive with band at banding place (as adult female) on 25 Jun 2012, over 13 years 7 months after banding.

## Australian Magpie *Cracticus tibicen*

091-14092. Banded by D.C. Paton at Yilki, SA on 28 Dec. 1996. Recovered being attacked by other Magpies at banding site, taken into care for 24 hours then released at banding site on 26 July 2012, over 15 years, 6 months after banding.

## Rufous Fantail *Rhipidura rufifrons*

017-23149 Adult (1+) banded by K. Wood at Iluka Nature Reserve, NSW on 22 Oct 2006. Recaptured, released alive with band at banding place by G. P. Clancy on 27 Aug 2012, over 5 years 10 months after banding.

## Grey Fantail *Rhipidura albiscapa*

018-57180. Adult (2+) female banded by G. Fry at Munghorn Gap Nature Reserve near Mudgee, NSW on 1 Oct. 2005. Recaptured, released alive with band at banding place twice the last occasion by J. Farrell on 1 Oct. 2011, over 6 years after banding.

## White-winged Chough *Corcorax melanorhamphos*

091-34738. Immature (1) banded by A.J. Leishman at Munghorn Gap Nature Reserve, near Mudgee, NSW on 25 April 2005. Recaptured, released alive with two bands at banding place by G. Fry on 24 Feb. 2012, over 6 years, 10 months after banding.

(The bird was also banded with band no. 091-43311.)

## Eastern Yellow Robin *Eopsaltria australis*

025-85605. Adult female banded by L.W. Filewood at Scheyville National Park, near Windsor NSW on 12 Dec. 2004. Recaptured, released alive with band at banding place five times, the last occasion by D. McKay on 10 June 2012, over 7 years 6 months after banding.

Results of an online search (18/01/2014) by JL of the ABBBS Database for  
Banded Stilt banding and recovery summary data. Seek details of all  
records held by ABBBS of BaSt chicks leg-flagged and/or banded at Lakes  
Ballard & Marmion in 1995.

## Bird and bat banding

### Frequently asked questions

You are here: [Environment home](#) » [Biodiversity](#) » [Bird and bat banding](#) » [ABBBS Database](#)

## ABBBS Database Search: *Cladorhynchus leucocephalus* (Banded Stilt)

|                         |                                    |
|-------------------------|------------------------------------|
| <b>Free Text Search</b> | Banded Stilt                       |
| <b>Scientific Name</b>  | <i>Cladorhynchus leucocephalus</i> |
| <b>Family</b>           | Recurvirostridae                   |
| <b>SPRAT Database</b>   | <a href="#">SPRAT Listing</a>      |

[Search the Species Profile and Threats Database](#)

### Banding Data

|                     |               |
|---------------------|---------------|
| <b>Total Banded</b> | 508           |
| <b>First Banded</b> | March 1959    |
| <b>Last Banded</b>  | February 2005 |

### Recovery Data

|                                 |                |
|---------------------------------|----------------|
| <b>Total Recoveries</b>         | 5              |
| <b>Resightings</b>              |                |
| <b>Recovered Only Once</b>      | 5              |
| <b>Distinct Recoveries</b>      | 5              |
| <b>Most Frequent Resighting</b> | Once           |
| <b>First Recovery</b>           | September 1986 |
| <b>Last Recovery</b>            | April 2012     |

### Maximum Movement and Elapsed Time Details

**Movement** Minimum: 2 km Average: 311 km Maximum: 1181 km  
 Band 08302581, banded in December 2000 at WERRIBEE SEWERAGE FARM (SPIT, PT WILSON), VIC (-38 deg 5 min, 144 deg 31 min). Recovered after 11 years 3.4 months at CENTRE ISLAND, MIDDLE OF LAKE EYRE SOUTH, SA (-29 deg 21 min, 137 deg 13 min) in April 2012 after moving 1181 km.  
 Recovery method: BAND NUMBER READ IN FIELD (BIRD NOT TRAPPED) Recovery status: WAS ALIVE IN THE WILD WITH THE BAND.

**Elapsed Time** Average: 2 years 11.5 months Maximum: 11 years 3.4 months  
 Band 08302581, banded in December 2000 at WERRIBEE SEWERAGE FARM (SPIT, PT WILSON), VIC (-38 deg 5 min, 144 deg 31 min). Recovered after 11 years 3.4 months at CENTRE ISLAND, MIDDLE OF LAKE EYRE SOUTH, SA (-29 deg 21 min, 137 deg 13 min) in April 2012 after moving 1181 km.  
 Recovery method: BAND NUMBER READ IN FIELD (BIRD NOT TRAPPED) Recovery status: WAS ALIVE IN THE WILD WITH THE BAND.

## Caveat

This database is designed to provide information on bird and bat species, banded under the auspices of the Australian Bird & Bat Banding Scheme (ABBBS) managed by the Australian Government Department of the Environment, Water, Heritage and the Arts. It has been compiled from a range of sources including information provided by banders and recoveries of banded birds and bats made by members of the public. While reasonable efforts have been made to ensure the accuracy of the information, no guarantee is given, nor responsibility taken, by the Commonwealth for its accuracy, currency or completeness. The Commonwealth does not accept any responsibility for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on, the information contained in this database. The information contained in this database does not necessarily represent the views of the Commonwealth. This database is not intended to be a complete source of information on the matters it deals with.

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**Copy of Standen, R. (2012) *Banded Stilt in central WA, May/June 2012*. Journal of the Victorian Wader Study Group, Bulletin No. 35, pp.58-60.**  
**On page 60 there is a Table showing the leg flag 'schema' used on Banded Stilt in Australia from 1995 onwards. The first entry is 'A single yellow flag on the upper right leg was flagged as a chick in 1995 at Lake Ballard in WA. Several of these were seen at Lake Eyre in 2000 and one at Lake George in April 2001'. Note that, in reality, only 10 BaSt chicks at Ballard in 1995 were flagged on the right leg, while the rest (154) were (correctly) flagged on the left. At Lake Marmion in 1995, approx. 200 were flagged on the right leg and an uncertain number (>100) were flagged on the left.**

## Banded Stilt in central WA

May/June 2012

Rog Standen

While on a stay with friends who own the pastoral lease of Cunyu Station, immediately below the Little Sandy Desert of WA, I stumbled across huge numbers of Banded Stilt on a number of lakes that filled early in 2011 and/or 2012.

I knew from discussions with Maureen Christie that there had been chicks banded and flagged over the last couple of years at Lake Torrens SA, so I set about trying to find out if any had made their way to WA.



Camping beside Red Lake (one of the more accessible lakes) for a few days gave me the opportunity to spend many hours scouring the thousands of legs I could see through the scope. The birds continually fed across the vast lake and also formed a roosting raft that varied in size depending on how many were out feeding. Interestingly, the raft was always in the same part of the lake every time I went there over a three week period (frustratingly the raft was at the other end of the lake to where the track was closest to it).

What excitement I had when I finally found one of the flagged chicks! Still in immature plumage with just a hint of a breast band, the bird wore orange over yellow flags that were clipped to triangular flags meaning it was banded in early 2011. This bird was very recognisable as it also had a slightly upturned beak. That physical feature proved to be very useful a few days later when I took Dawn, the owner, to see this wonderful spectacle of thousands of birds in a huge raft. To my surprise I managed to find the flagged bird again in the same place on the lake as before. Dawn had seen the flock of birds, rising like a cloud, from her vehicle at the other end of the lake about 5km across, but did not know what they were. She was very excited about seeing these birds through a scope and especially seeing the flagged bird.



News of the sighting was relayed to Maureen who circulated it among the core Banded Stilt people and on a return email (this one from PhD candidate Reece Pedler) I found that another bird, with a satellite transmitter fitted at Lake Eyre in early 2012, had also flown to this property and was on Lake Nabberu at that time. The trouble was that Lake Nabberu is actually a series of connected lakes about 100 km long! Fortunately he could send me a satellite image showing which part of the Nabberu Lake complex it was last seen on. It happened to be on the other side of the Frere Range to where Red Lake is so still on Cunyu. Subsequent email traffic showed that it moved to Red Lake! Despite my attempts I could not find that one among the possible hundred thousand birds on the lake. But at least I could add some valuable information about what other birds were with the satellite bird and information about habitat and possible food.

In relation to the food, there was virtually nothing to see with the naked eye in the lake that the birds were eating. I hopefully have some samples that I sieved through some gauze that I will try and identify under a microscope. The water was not as salty about 11,000 EC, as I thought it might have been.

Contrary to the invisible food, one noticeable thing happening was that the wind was pushing the water hundreds of metres from one side and it then flowed back overnight when it calmed down creating a 'tidal' movement in the lake. This made it attractive to over 1,000 Red-capped Plovers and over 500 Red-necked Stint.

Other lakes had varying numbers from five to 1,800 to several thousand and at another lake further west, which is part of the extensive Lake Nabberu, close to one hundred thousand birds. However, when I got to this one, prompted by Reece's satellite bird having moved there, I suspect many of the Red Lake birds had gone there too as the numbers had dropped off at Red Lake by then. Other species on the Red Lake included Black-winged Stilt (over a thousand), Red-necked Avocets (10s), Curlew Sandpipers (5), Sharpies (3) and a single Greenshank with tens of thousands of Grey Teal, Pink-eared Duck by the thousand and a few of several other duck species.

Several of the lakes dried up during my stay there, but the most westerly Lake Nabberu where the stilt went was much deeper than the rest and would have kept water in it for some months.

The size of the lakes, difficult access and numbers of birds moving around made it impossible to get good estimates of numbers but the order of magnitude was in no doubt. Where will they go when these lakes do dry out – as they always do? This will be fascinating to find out.



The Banded Stilt were the highlight of a month spent building a bird list for the million-acre property and capturing the station in pictures. My thanks go to Ken and Dawn for their hospitality and access to the property through the use of a station vehicle that enabled me to get to places I wouldn't have gone with my own vehicle.

#### BANDED STILT FLAGS

|  |   |
|--|---|
| <br>R L   | <p><b>A single yellow flag on the right upper leg</b> was flagged as a chick in 1995 at Lake Ballard in WA. Several of these were seen at Lake Eyre in 2000 and one at Lake George in April 2001.</p>   |
| <br>R L  | <p><b>A single orange flag on the right upper</b> was flagged in Victoria, the majority at Werribee in 2000. Several of these have been seen in the Coorong (Feb 2005, August 2007). And one in the pastoral lands in May, 2011.</p>  |
| <br>R L | <p><b>Orange above yellow flags on the right upper (rectangular flags)</b> was flagged as a chick in the Coorong in 2006. There have been several sightings of these in Victoria. In Feb 2008 one was seen at Yalgorup National Park, WA (about 1/2 way between Mandurah and Bunbury, on the coast). This is the first recorded movement of Banded Stilt from eastern Australia to Western Australia. One was seen accompanying a group of chicks to the water at Lake Torrens in June, 2010. A Coorong flagged adult was seen in the 2011 Lake Torrens breeding colony</p> |
| <br>R L | <p><b>Orange above yellow flags on the left upper (rectangular flags)</b> was flagged as a chick at Lake Torrens in June 2010. One seen in the pastoral lands in May, 2011.</p>   |
| <br>R L | <p><b>Orange above yellow flags on the left upper (triangular flags)</b> was flagged as a chick at Lake Torrens in April 2011.</p>  |

**Journal of the Victorian Wader Study Group**  
**Bulletin Number 35 2012**

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Extracts from Minton, CDT (2005). *What have we learned from banding and flagging waders in Australia?* Pages 116-142 in 'Status and Conservation of Shorebirds in the East Asian-Australasian Flyway' – Proceedings of the Australasian Shorebirds Conference 13-15 Dec 2003, Canberra. (Edited by Phil Straw) Refers to banding of '850' Banded Stilt at 'Lake Ballard' by CALM in 1995. Flagging of BaSt at Lake Ballard and Banding / flagging of BaSt at Lake Marmion not referred to. **This suggests these data had (have) not been sent to ABBBS (or CDTM).**

# What have we learned from banding and flagging waders in Australia?

Clive Minton

165 Dalgety Road, Beaumaris, VIC. 3193, Australia. [mintons@ozemail.com.au](mailto:mintons@ozemail.com.au)

## Abstract

More than a quarter of a million waders have been banded in Australia over the last 45 years, 95% being migratory species. Around 126,000 of these have also been colour leg-flagged since this process was introduced in 1990. There have so far been 534 recoveries and 3903 sightings of leg-flagged birds overseas, as well as 150 recoveries and 225 leg-flag sightings in Australia of waders marked overseas. Overseas recovery rates for species varied widely, between 0.03% for Red-necked Stints banded in NW Australia and 1.1% for Red Knot from SE Australia. The average recovery rates for migratory waders banded in these two regions were 0.32% and 0.12% respectively, and 0.21% for Australia as a whole. Overseas flag-sighting rates were on average 30 times higher for birds marked in SE Australia and 5.6 times higher for NW Australia than banding recoveries. Flag-sightings have now been reported from 16 different countries in the Flyway. There is a strong preponderance of flag-sightings in Asia, of birds on northward migration over birds on southward migration. Maps of recoveries and flag-sightings show the marked differences in migration routes and destinations between different species, and even between different populations of the same species. Other knowledge gained from banding activities is briefly outlined, and future priorities discussed.

## Introduction

Waders comprise nine percent of the Australian avifauna. Of the 73 species recorded in Australia, 37 are migrants (36 being from the Northern Hemisphere), 17 are vagrants (again, all from the Northern Hemisphere), and 19 are residents (nine being endemic to Australia).

As in many parts of the world intensive studies of waders have lagged behind studies of other groups of birds, especially land birds, seabirds and waterfowl. Systematic widespread population censuses of wader populations in Australia only commenced in 1981. The chicks of some resident species of waders have been banded ever since the inception of bird-banding in Australia in 1953. However large-scale banding of adult waders, especially of the migratory species, only commenced in the 1970s, when mist-nets and cannon-nets were first employed to catch the birds.

This paper concentrates on information that has come out of banding and colour leg-flagging activities via recoveries and re-sightings of colour-marked birds in the last 25 years. Other knowledge (such as biometric and moult data, age data, survival and reproduction rate information) gained during catching and banding operations is only briefly covered.

## History

In comparison with many other banding activities, wader banding is very much a team operation. This is partly because of the logistics of handling heavy and bulky catching equipment, often in difficult terrain, but also because, in both mist- and cannon-netting, quite large numbers of birds may be caught at once. To process these birds quickly and collect the maximum amount of data, a large team is needed.

Wader banding activities around Australia have resulted largely from the efforts of a few experienced and enthusiastic individuals who gathered teams together to carry out the fieldwork. These teams have operated at different periods in time and at different locations over the last 45 years. Some programs operated for just a few years whilst others have been sustained over more than 25 years.

The main programs are summarised below:

- a) Dom Serventy and Lexie Nichols caught waders on the Swan Estuary, Perth, from 1958 to at least 1961, using walk-in style traps (Serventy et al. 1962).
- b) Jim Lane continued wader studies on the Swan River using mist-nets from 1972 to 1978. In 1979 the WA Wader Study Group (WAWSG) took over responsibility for wader banding in the Swan River Estuary, later introducing cannon-nets. This activity is continuing under the guidance of Mike Bamford,
- c) Fred van Gessell, assisted by others including Bill Lane, commenced cannon-netting and mist-netting waders in New South Wales in 1970, mainly on the Hunter Estuary near Newcastle. These activities have continued intermittently up to the present time. The NSW Wader Study Group was also active in cannon-netting waders from 1991-97, under the leadership of Phil Straw.
- d) Wader mist-netting was commenced by David Robertson and others at Werribee Sewage Farm in Victoria in late 1975. These efforts were augmented in late 1978 when Clive Minton introduced large-scale cannon-netting, as developed in Europe. The Victorian Wader Study Group (VWSG) was formally constituted at this time. These activities have been consistently maintained over a 26-year period.
- e) The Australasian Wader Studies Group (AWSG) held the first of its expeditions to Northwest Australia (NWA) in 1981. These visits have become almost

annual, covering Roebuck Bay (Broome), 80-Mile Beach, and Port Hedland Saltworks. Since the formation of Broome Bird Observatory (BBO) in 1988, BBO staff and other local enthusiasts have maintained wader banding operations between expeditions and in recent years these have been led by Chris Hassell.

- f) Wader banding in the Hobart region, Tasmania, took place for about six years from 1979 to the mid-1980s, mainly employing cannon-nets. Mark Fletcher was the main co-ordinator.
- g) Regular small-scale wader banding was commenced by Vic Smith in Albany, southern Western Australia, in 1985 and is continuing. Mist-nets were initially used and were later complemented with cannon-nets.
- h) Extensive wader banding activities were carried out by the Queensland Wader Study Group (QWSG) in Moreton Bay, near Brisbane, between 1989 and 1999. Most birds were caught with cannon-nets. These activities terminated when the licensed cannon-netter, Peter Driscoll, became unavailable, then moved away from the area.
- i) Attempts over the years to start regular wader banding in the Adelaide area, South Australia, have been unsuccessful. Max Waterman made a couple of good cannon-net catches of Red Knot in the Spencer Gulf in 1981-82, but activities then ceased. However since 1993 the VWSG has made annual visits to the southeast coast of South Australia, mainly to catch Sanderling and Ruddy Turnstone (see Tables 1 and 2 for scientific names). This is continuing, and is now supplemented by cannon-netting carried out by Maureen Christie, who lives in the area.
- j) Some wader banding has taken place over the years in the Darwin region, Northern Territory. Occasional mist-netting by a number of people (Tony Hertog, Fred van Gessell) over the years has been augmented by short periods of cannon-netting, organised by Ray Chatto and assisted by visits of experienced people from elsewhere in Australia.
- k) The WA Department of Conservation and Land Management carried out a major banding exercise on chicks at a Banded Stilt colony at Lake Ballard in 1995, with Grant Pearson the principal person involved.

### Methods

Total numbers of individuals of each species banded in Australia were obtained directly from the groups and individuals (or their publications) involved in wader-banding activities over the last 45 years. This was necessary because some of the banding data submitted to the Australian Bird and Bat Banding Scheme (ABBBS) Office prior to the introduction of computerisation in 1984, have not yet been incorporated into its database. Also, several years of the most recent banding data are not yet incorporated into the database. I estimate that I have gathered at least 98% of the banding data on migratory waders but a smaller proportion of the banding data for resident waders, mainly because many of the latter were marked as chicks by very many individual banders over many years. Where the ABBBS figure for a species exceeds the total obtained from my direct approach to known major wader-banders, the ABBBS total has been used.

All recoveries have been provided by the ABBBS. A recovery is any report of a banded bird that can be identified individually, either by the number on the metal band, by unique colour-markings (e.g. multiple colour bands / leg flags), or by alphanumerically engraved leg flags. Recoveries may be of dead or injured birds, birds recaptured alive by banders away from the site of banding, or birds sighted as colour-marked individuals. Recoveries up to 29 November 2003 are included in this analysis.

The placing of a coloured PVC leg-flag on waders began, in Victoria, in December 1990. Leg-flagging in NW Australia began in August 1992 and leg-flagging has subsequently been introduced in other areas. To co-ordinate the introduction of flagging throughout the East Asian – Australasian Flyway, a Protocol was developed in the late 1990s under the auspices of Wetlands International and the ABBBS. The number of birds flagged each year in Australia, up to the end of 2003, has been collected from each wader-banding group or individual.

Flag-sightings have been gathered from a variety of sources, especially the groups and individuals responsible for the flagging. Since 2001 the ABBBS has operated a centralised leg-flagging database on behalf of the ABBBS, with the financial support of the Federal Department of Environment and Heritage (previously Environment Australia). The numbers of birds flagged are provided up to the end of 2003. Flag-sightings (all of which relate to live birds) are provided up to 1 December 2003.

A recovery is a unique event (though very occasionally birds may be recovered more than once) but the number of flag-sighting reports doesn't necessarily equal the number of different flagged birds that have been seen, because a bird carrying a flag cannot be individually identified. For example, at regularly monitored migration stop-over locations, such as Mai-Po Marshes in Hong Kong, an individual bird may be re-sighted and recorded on a number of different days during its stop-over. Also, when a bird permanently changes its non-breeding area, for example from Victoria to an interstate location such as Moreton Bay or Roebuck Bay, it may be sighted several times over a period of months, or even years. Each sighting on a different day is added to the database as a new record. This potential multiplicity of records for a flagged bird needs to be considered when interpreting sightings data.

There is also potential for duplication of records when several flagged birds are present at a particular locality on the same day, often in the same flock. Many regular observers of flagged birds are skilled at determining the number of individual flagged birds present by using criteria such as the proportion of breeding plumage on the bird, its sex (determined by plumage or size), the position of the metal band, and the position of the flag(s). Duplication of records is more likely when two independent observers see a flagged bird on the same day at the same location. Follow-up discussion with the observers can often resolve this situation.

**Table 2.** Resident Waders Banded in Australia

| Region               | STATE                                | VIC         | WA          | NSW        |                     |                         |           | TAS        | QLD        | NT         | TOTAL      | ABBBS<br>Totals |
|----------------------|--------------------------------------|-------------|-------------|------------|---------------------|-------------------------|-----------|------------|------------|------------|------------|-----------------|
|                      |                                      |             |             | NWA        | AWSG/BBO/<br>NWMMSG | Lake<br>Ballard<br>CALM | Perth     | Albany     |            |            |            |                 |
| Bander/s             |                                      | VWSG        |             |            |                     |                         |           |            |            |            |            |                 |
| Period               |                                      | 1975-1981-  | 1995        | 1979-      | 1995                | 1958-60                 | 1985-     | 1970-      | 1991-97    | 1980-87    | 1989-99    | 1995-96         |
| Species              | Scientific name                      |             |             |            |                     |                         |           |            |            |            |            |                 |
| Pied Oystercatcher   | <i>Haematopus longirostris</i>       | 2081        | 205         |            | 6                   |                         |           |            |            |            |            |                 |
| Red-capped Plover    | <i>Charadrius ruficollis</i>         | 631         | 884         |            | 546                 | 108                     | 47        | 188        |            | 451        | 164        | 1               |
| Banded Snipe         | <i>Cladorhynchus leucocephalus</i>   | 151         | 92          | 850        | 23                  | 4                       |           |            |            | 245        | 12         | 7               |
| Red-necked Avocet    | <i>Recurvirostra novaehollandiae</i> | 312         | 232         |            | 36                  |                         |           |            |            |            |            |                 |
| Black-winged Stilt   | <i>Himantopus himantopus</i>         | 24          | 409         |            | 51                  |                         |           |            |            |            |            |                 |
| Sooty Oystercatcher  | <i>Haematopus fuliginosus</i>        | 638         | 50          |            |                     |                         |           |            |            |            |            |                 |
| Red-kneed Dotterel   | <i>Erythrogonys cinctus</i>          | 135         | 192         |            | 2                   | 1                       |           |            |            |            |            |                 |
| Masked Lapwing       | <i>Vanellus miles</i>                | 160         | 99          |            |                     |                         |           |            |            |            |            |                 |
| Black-fronted Plover | <i>Elaenornis melanops</i>           | 56          | 109         |            | 6                   |                         |           |            |            |            |            |                 |
| Hooded Plover        | <i>Thinornis rubricollis</i>         | 26          |             | 10         |                     |                         |           |            |            |            |            |                 |
| Banded Lapwing       | <i>Vanellus tricolor</i>             |             |             |            |                     |                         |           |            |            |            |            |                 |
| Painted Snipe        | <i>Rostratula benghalensis</i>       | 6           |             |            |                     |                         |           |            |            |            |            |                 |
| Beach Stone-curlew   | <i>Esacus neglectus</i>              |             |             |            |                     |                         |           |            |            |            |            |                 |
| Bush Stone-curlew    | <i>Burhinus grallarius</i>           |             |             |            |                     |                         |           |            |            |            |            |                 |
| Comb-crested Jacana  | <i>Irediparra gallinacea</i>         |             |             |            |                     |                         |           |            |            |            |            |                 |
| Inland Dotterel      | <i>Charadrius australis</i>          |             |             |            |                     |                         |           |            |            |            |            |                 |
| <b>TOTAL</b>         |                                      | <b>4214</b> | <b>2278</b> | <b>850</b> | <b>680</b>          | <b>109</b>              | <b>51</b> | <b>866</b> | <b>556</b> | <b>852</b> | <b>184</b> | <b>1</b>        |
| <b>Species</b>       |                                      | <b>10</b>   | <b>10</b>   | <b>1</b>   | <b>8</b>            | <b>2</b>                | <b>2</b>  | <b>7</b>   | <b>8</b>   | <b>7</b>   | <b>4</b>   | <b>1</b>        |
| As at Dec. 2003      |                                      |             |             |            |                     |                         |           |            |            |            |            |                 |

ABBBS totals are ex their data bank as at Sept. 2003

\* Summation using the higher figure for each species in the two "totals" columns

**Table 8.** Numbers of Waders Flagged in Australia

| State (region):<br>Bander/s:<br>Flag colour/s: | VIC<br>WWSG<br>Orange | WA (northwest)<br>AWSG<br>Yellow | QLD<br>QWSG<br>Green | SA<br>WWSG<br>Orange/Yellow | WA (southwest)<br>WAWSG<br>Vic Smith<br>Yellow/Orange | NSW<br>NSWWSG<br>Orange/Green | TOTAL         |
|--|-----------------------|----------------------------------|----------------------|-----------------------------|---|-------------------------------|---------------|
| <b>Species</b>                                 |                       |                                  |                      |                             |   |                               |               |
| Latham's Snipe                                 | 278                   |                                  |                      | 4                           |   |                               | 282           |
| Pin-tailed Snipe                               |                       | 1                                |                      |                             |   |                               | 1             |
| Swinhoe's Snipe                                |                       | 5                                |                      |                             |   |                               | 5             |
| Black-tailed Godwit                            | 3                     | 558                              |                      |                             |   |                               | 561           |
| Bar-tailed Godwit                              | 1753                  | 6989                             | 1647                 | 3                           |   |                               | 10392         |
| Little Curlew                                  |                       | 890                              |                      |                             |   |                               | 890           |
| Whimbrel                                       | 21                    | 256                              | 94                   |                             |   |                               | 371           |
| Eastern Curlew                                 | 524                   | 137                              | 206                  |                             |   |                               | 867           |
| Common Redshank                                |                       | 4                                |                      |                             |   |                               | 4             |
| Marsh Sandpiper                                | 2                     | 95                               |                      |                             |   |                               | 97            |
| Common Greenshank                              | 395                   | 135                              |                      |                             |   |                               | 530           |
| Wood Sandpiper                                 |                       | 41                               |                      |                             |   |                               | 41            |
| Terek Sandpiper                                | 10                    | 3739                             |                      |                             |   |                               | 3749          |
| Common Sandpiper                               |                       | 45                               |                      |                             |   |                               | 45            |
| Grey-tailed Tattler                            | 5                     | 3703                             | 189                  | 1                           |   |                               | 3898          |
| Ruddy Turnstone                                | 1454                  | 804                              | 76                   | 802                         |   |                               | 3136          |
| Asian Dowitcher                                |                       | 95                               |                      |                             |   |                               | 95            |
| Great Knot                                     | 290                   | 10372                            | 874                  |                             | 1   |                               | 11537         |
| Red Knot                                       | 2733                  | 2884                             | 258                  |                             | 1   |                               | 5876          |
| Sanderling                                     | 1488                  | 640                              |                      | 1128                        |   |                               | 3256          |
| Little Stint                                   | 5                     | 1                                |                      |                             |   |                               | 6             |
| Red-necked Stint                               | 42078                 | 8336                             |                      | 1013                        | 230   | 4                             | 51661         |
| Long-toed Stint                                |                       | 45                               |                      |                             |   |                               | 45            |
| Pectoral Sandpiper                             | 1                     | 1                                |                      |                             |   |                               | 2             |
| Cox's Sandpiper                                | 1                     |                                  |                      |                             |   |                               | 1             |
| Sharp-tailed Sandpiper                         | 3373                  | 599                              |                      | 36                          |   |                               | 4008          |
| Curlew Sandpiper                               | 9241                  | 5300                             | 247                  | 238                         |   |                               | 15026         |
| Broad-billed Sandpiper                         | 3                     | 484                              |                      |                             |   |                               | 487           |
| Ruff   |                       | 1                                |                      |                             |   |                               | 1             |
| Red-necked Phalarope                           |                       | 22                               |                      |                             |   |                               | 22            |
| Painted Snipe                                  |                       | 6                                |                      |                             |   |                               | 6             |
| Pied Oystercatcher                             |                       | 192                              | 79                   |                             |   |                               | 271           |
| Sooty Oystercatcher                            |                       | 45                               |                      |                             |   |                               | 45            |
| Black-winged Stilt                             | 6                     | 253                              |                      |                             |   |                               | 259           |
| Banded Stilt                                   | 151                   |                                  |                      |                             |   |                               | 151           |
| Red-necked Avocet                              | 84                    | 133                              |                      |                             |   |                               | 217           |
| Pacific Golden Plover                          | 64                    | 19                               |                      | 3                           |   |                               | 86            |
| Grey Plover                                    | 75                    | 237                              |                      |                             | 2   |                               | 314           |
| Little Ringed Plover                           |                       | 1                                |                      |                             |   |                               | 1             |
| Red-capped Plover                              | 81                    | 514                              |                      | 13                          |   |                               | 608           |
| Double-banded Plover                           | 282                   |                                  |                      | 10                          |   |                               | 292           |
| Lesser Sand Plover                             | 55                    | 230                              | 72                   |                             |   |                               | 357           |
| Greater Sand Plover                            | 16                    | 6113                             | 33                   |                             | 1   |                               | 6163          |
| Oriental Plover                                |                       | 238                              |                      |                             |   |                               | 238           |
| Black-fronted Dotterel                         | 1                     | 66                               |                      | 3                           |   |                               | 70            |
| Hooded Plover                                  |                       |                                  |                      | 1                           |   |                               | 1             |
| Red-kneed Dotterel                             | 2                     | 74                               |                      |                             |   |                               | 76            |
| Masked Lapwing                                 | 17                    | 72                               |                      | 4                           |   |                               | 93            |
| Oriental Pratincole                            |                       | 75                               |                      |                             |   |                               | 75            |
| Australian Pratincole                          |                       | 11                               |                      |                             |   |                               | 11            |
| <b>TOTAL</b>                                   | <b>64492</b>          | <b>54461</b>                     | <b>3775</b>          | <b>3254</b>                 | <b>235</b>  | <b>4</b>                      | <b>126221</b> |

Data to end of 2003

VIC total also includes some Sanderling and Ruddy Turnstone flagged orange (only) in S.E. of South Australia prior to April 1999

**Table 11.** Origin of Overseas-flagged Waders seen in Australia

| Species                | Japan      | New Zealand | Korea     | China     | Taiwan   | Hong Kong | TOTAL      |
|------------------------|------------|-------------|-----------|-----------|----------|-----------|------------|
| Grey-tailed Tattler    | 116        |             |           |           | 4        |           | 120        |
| Great Knot             | 6          |             | 22        | 1         |          |           | 29         |
| Bar-tailed Godwit      |            | 7           | 6         | 11        |          |           | 24         |
| Red Knot               | 1          | 23          |           |           |          |           | 24         |
| Red-necked Stint       | 8          |             |           |           |          |           | 8          |
| Ruddy Turnstone        | 4          |             | 2         |           |          |           | 6          |
| Black-tailed Godwit    | 4          |             |           |           |          |           | 4          |
| Curlew Sandpiper       | 1          |             |           |           | 2        |           | 3          |
| Greater Sand Plover    |            |             |           | 2         |          |           | 2          |
| Lesser Sand Plover     | 1          |             |           |           |          |           | 1          |
| Double-banded Plover   |            | 1           |           |           |          |           | 1          |
| Terek Sandpiper        | 1          |             |           |           |          |           | 1          |
| Sharp-tailed Sandpiper |            |             |           |           | 1        |           | 1          |
| Broad-billed Sandpiper | 1          |             |           |           |          |           | 1          |
| <b>TOTAL</b>           | <b>143</b> | <b>31</b>   | <b>30</b> | <b>12</b> | <b>7</b> | <b>2</b>  | <b>225</b> |

As at 01/12/2003

**Table 12.** Flag-sightings within Australia away from the Flagging Location

| Flagging Location | TOTAL Sighting Location |            |            |            |            |           |           |             |
|-------------------|-------------------------|------------|------------|------------|------------|-----------|-----------|-------------|
|                   | WA                      | SA         | QLD        | NSW        | VIC        | TAS       | NT        | TOTAL       |
| VIC               | 285                     | 290        | 290        | 187        | 91         | 80        | 19        | <b>1242</b> |
| SA                | 54                      | 31         | 1          | 7          | 98         | 1         | 5         | <b>197</b>  |
| NWA               | 30                      | 16         | 5          | 22         | 40         | 2         |           | <b>115</b>  |
| QLD               |                         |            | 6          | 24         | 2          |           |           | <b>32</b>   |
| SW WA             | 1                       | 1          |            |            |            |           |           | <b>2</b>    |
| <b>TOTAL</b>      | <b>370</b>              | <b>338</b> | <b>302</b> | <b>240</b> | <b>231</b> | <b>83</b> | <b>24</b> | <b>1588</b> |

As at 01/12/2003

**Table 13.** Overseas Sightings of Australian-flagged Waders on Northward and Southward Migration through Asia

| Country      | Migration Season |            |
|--------------|------------------|------------|
|              | Northward        | Southward  |
| Hong Kong    | 880              | 9          |
| Korea        | 228              | 90         |
| Japan        | 177              | 293        |
| Taiwan       | 154              | 47         |
| China        | 106              | 2          |
| Mongolia     | 17               | 2          |
| Vietnam      | 5                | 0          |
| Malaysia     | 3                | 1          |
| Indonesia    | 1                | 4          |
| Brunei       | 1                | 3          |
| <b>TOTAL</b> | <b>1572</b>      | <b>451</b> |

As at 01/12/2003

**Table 14.** Overseas Sightings of Waders Leg-flagged in S.E. Australia

| Species                        | Number Flagged in S.E. Australia* | No. Flag Sightings Overseas** | Overseas Flag-sighting Rate % |
|--------------------------------|-----------------------------------|-------------------------------|-------------------------------|
| Red Knot                       | 2733                              | 989                           | 36.2                          |
| Bar-tailed Godwit              | 1756                              | 457                           | 26.0                          |
| Curlew Sandpiper               | 9479                              | 357                           | 3.8                           |
| Red-necked Stint               | 43091                             | 311                           | 0.7                           |
| Sanderling                     | 2616                              | 167                           | 6.4                           |
| Ruddy Turnstone                | 2256                              | 34                            | 1.5                           |
| Eastern Curlew                 | 524                               | 21                            | 4.0                           |
| Grey Plover                    | 75                                | 19                            | 25.3                          |
| Great Knot                     | 290                               | 14                            | 4.8                           |
| Sharp-tailed Sandpiper         | 3409                              | 13                            | 0.4                           |
| Greater Sand Plover            | 16                                | 11                            | 68.8                          |
| Terek Sandpiper                | 10                                | 4                             | 40.0                          |
| Double-banded Plover           | 292                               | 3                             | 1.3                           |
| Black-tailed Godwit            | 3                                 | 2                             | 66.7                          |
| Lesser Sand Plover             | 55                                | 1                             | 1.8                           |
| Other species (migratory only) | 783                               |                               |                               |
| <b>TOTAL</b>                   | <b>67388</b>                      | <b>2403</b>                   | <b>3.6</b>                    |

\*to end 2003

\*\*to 01/12/2003

S.E. Australia includes Victoria and the southeast of South Australia

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# Status and Conservation of Shorebirds in the East Asian-Australasian Flyway

Proceedings of the Australasian Shorebirds Conference  
13-15 December 2003, Canberra, Australia

Edited by Phil Straw

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Email (06/10/2000) from CDTM to GBP in which he writes, *inter alia*, 'I want to put them [recent leg-flag sightings at Lake Eyre] into the system for processing by ABBBS but I do not have the banding details. Could you tell me please (A) the range of dates during which the leg flagging took place; (B) approx coordinates of the part of the lake [sic] where most leg flagging took place; (C) exactly how many BS [BaSt] were flagged, and (D) whether the formal field data sheets returns were made to the Banding Office [ABBBS]'. GBP annotated the email hardcopy with 'colony: 29 44 36 S, 121 29 13 E' and 'camp: 29 47 01 S, 121 33 06'. These are coordinates of locations on Lake Marmion. See them plotted (by JL on 31/10/2014) on the accompanying Google Earth image. These are identical to the coordinates in GBP's typed report of 17/06/1995 (faxed to JL on 19/06/1995).

To: Grant Pearson@WOOD.SID@CALM  
From: "Pat and Clive Minton" <mintons@ozemail.com.au>  
Cc:  
Subject: yellow flagged Stilts  
Attachment:  
Date: 06/10/2000 7:58 AM

(158)

DEar Grant

I'm not sure whether i've told you but we've had at least 3 different yellow flagged banded Stilts breeding at L Eyre this year. I want to put them into the system for processing by ABBBS but I do not have the banding details. Could you tell me please

- A) the range of dates during which the leg flagging took place in 1995
- B) approx coordinates of the part of the lake where most leg flagging took place.
- C) exactly how many BS were flagged
- D) whether the formal field data sheets returns were made to the Banding Office.

Looking forward to hearing from you

Best wishes Clive

6th Oct 2000

seen at Lake Eyre in  
April + July 2000  
Therefore this email  
is 6th Oct 2000  
31/01/2014

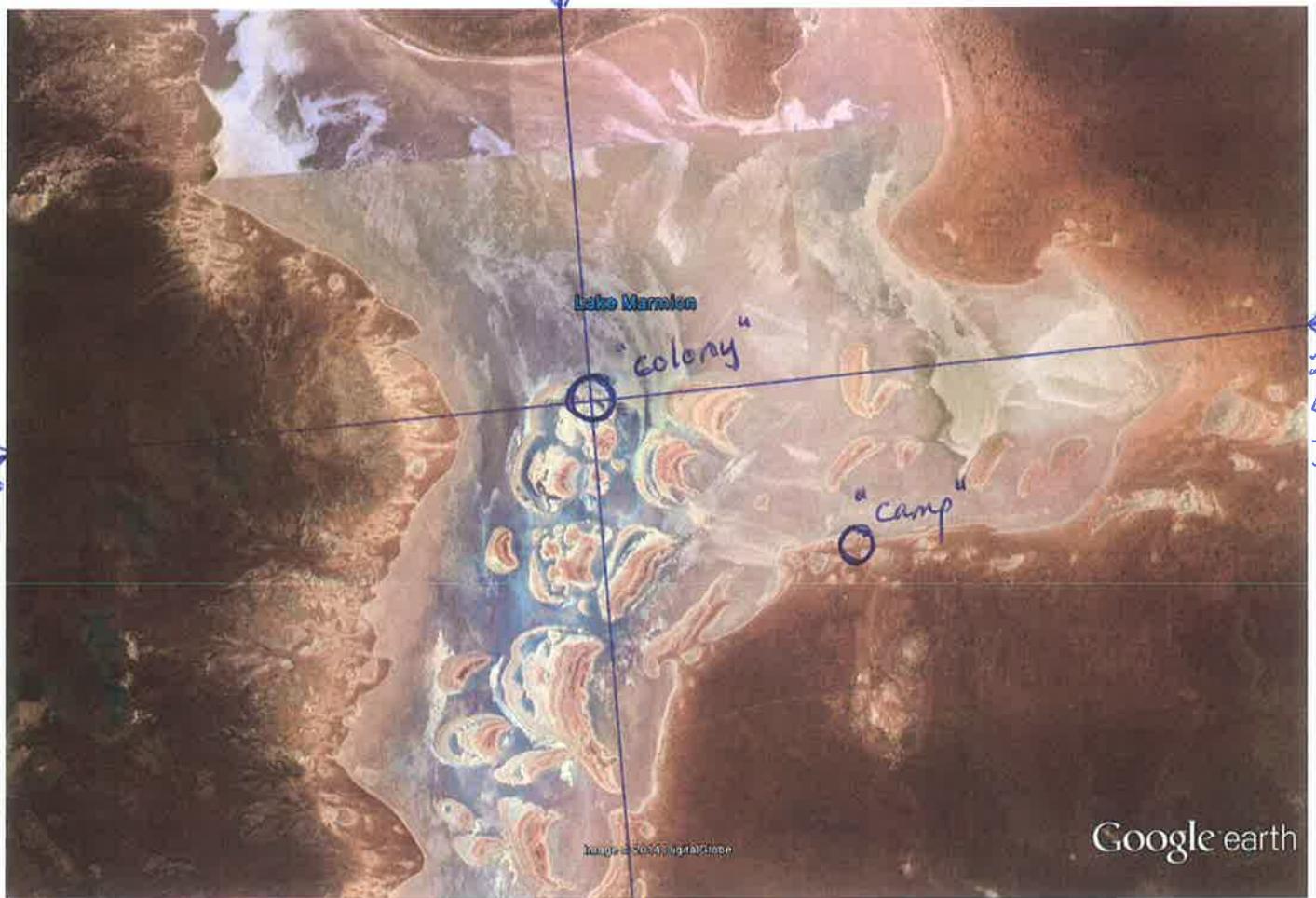
29 44 36  
121 29 13 colony

29 47 01  
121 33 06 camp

These are coordinates  
of "colony" and "camp"  
at Lake Mervin.

See accompanying Google Earth  
image of 31/01/2014 with  
these coordinates marked  
on it by me.

31/01/2014



Google earth

miles  
km

121° 29' 13" E



This is Lake Marmion, WA.

31/01/2014

**'Report of Recovery to Bander' (dated 14/09/2000) sent by ABBBS to 'The Australian Wader Study Group, c/- CDTM' and copied by ABBBS to GBP.**  
**This reports a leg-flag sighting at Hughes Island, Lake Eyre North SA, on 03/04/2000. Note that banding details are given as 'Lake Bollard [sic; should be 'Ballard'] WA' 'on 00/04/1995'. Curious that this letter was sent to CDTM and copied to GBP, given that the flagging was done under GBP's permit. When asking ABBBS for banding or flagging records, keep in mind that 'Ballard' was misspelt as 'Bollard' in part of their database.**



## AUSTRALIAN BIRD AND BAT BANDING SCHEME

|  |   |  |   |
|--|---|--|---|
| John Gorton Building<br>Parkes Place PARKES ACT 2600<br>GPO Box 8 CANBERRA ACT 2601<br>Telephone (02) 62742407 Fax (02) 62742455 | Barry Baker<br>Belinda Dettmann<br>Amelia McCulloch<br>David Drynan | 02.62742402<br>02.62742405<br>02.62742406<br>02.62742407 | barry.baker@ea.gov.au<br>belinda.dettmann@ea.gov.au<br>amelia.mcculloch@ea.gov.au<br>david.drynan@ea.gov.au |
|--|---|--|---|

14-SEP-2000

THE AUSTRALASIAN WADER STUDY GROUP  
C/- DR CDT MINTON  
165 DALGETTY ROAD  
BEAUMARIS VIC 3193

*Banded Stilt*

## REPORT OF RECOVERY TO BANDER

Dear Clive,

I have received a report of the recovery of a bird that you have banded. I apologise for the delay in getting this report to you. Please check the information given below and, if necessary, make any alterations and return this letter to me. If you do not contact the Banding office it will be assumed that the details given below are correct.

## FINDING DETAILS

LEG FLAG Yellow was sighted on 03/04/2000  
At : HUGHES ISLAND, LAKE EYRE NORTH SA  
Latitude : 28deg 36min 0sec S ; Longitude : 137deg 5min 0sec E

*Flag sighting*

The bird was : COLOUR MARKING SIGHTED IN FIELD (COHORT ONLY)  
And : WAS ALIVE IN THE WILD WITH THE BAND.

The finder is : Ros Jessop and Peter Collins  
RMB 4009  
COWES VIC 3922

## BANDING DETAILS OF THE COHORT OF BIRDS

You placed this band on a(n) : Banded Stilt  
or scientific name : *Cladorhynchus leucocephalus*  
on : 00/04/1995  
at : LEG FLAGS - LAKE BOLLARD WA  
Latitude : 29deg 25min 0sec S; Longitude : 120deg 50min 0sec E;

The bird was age code : NESTLING, sex code : UNKNOWN

The exact time between banding and recovery is unknown. The bird had moved a distance of : 1581 km with a bearing of 91 degrees.

Yours sincerely

*D. Drynan*

*D. Drynan*  
Project Officer



### AUSTRALIAN BIRD AND BAT BANDING SCHEME

John Gorton Building  
Parkes Place PARKES ACT 2600  
GPO Box 8 CANBERRA ACT 2601  
Telephone (02) 62742407 Fax (02) 62742455

Barry Baker 02.62742402  
Belinda Dettmann 02.62742405  
Amelia McCulloch 02.62742406  
David Drynan 02.62742407

barry.baker@ea.gov.au  
belinda.dettmann@ea.gov.au  
amelia.mcculloch@ea.gov.au  
david.drynan@ea.gov.au

14-SEP-2000

THE AUSTRALASIAN WADER STUDY GROUP  
C/- DR CDT MINTON  
165 DALGETTY ROAD  
BEAUMARIS VIC 3193

*Banded Stilt*

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Dear Clive,

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on : 00/04/1995  
at : LEG FLAGS - LAKE BOLLARD WA  
Latitude : 29deg 25min 0sec S; Longitude : 120deg 50min 0sec E;

The bird was age code : NESTLING, sex code : UNKNOWN

The exact time between banding and recovery is unknown. The bird had moved a distance of : 1581 km with a bearing of 91 degrees.

Yours sincerely

*Amelia McCulloch*

*D. Drynan*  
Project Officer

Email (13/04/2000) from CDTM to GBP and 'Allan' [Alan Clarke - ACl] inter alia indicating that Alan sent CDTM metal bands and yellow leg flags for potential use at Lake Eyre, but it turned out that they were unable to be used there. CDTM asks whether he should return them 'immediately' to GBP / Alan or hold onto them for a few weeks. Were they returned to GBP or ACl? (Presumably they were not, as JL searched band stocks in laboratory at Busselton office on 01/02/2014 and found neither leg-bands nor leg-flags for BaSt). [Note by JL on 03/02/2014. Double-check for leg-flags, possibly among duck nasal saddles or egret/heron/ibis wing tags?]

To: iSMTP@CALM.COMO.1@Servers[<mintons@ozemail.com.au>], Jim  
Lane@BUSS.SID@CALM

From: Grant Pearson@WOOD.SID@CALM

Cc:

Subject: re: Banded Stilts

Attachment:

Date: 13/Apr/2000 3:20 PM

12

Hi Clive.

Good news about the yellow flag indeed! I flew Ballard, Barlee, Marmion and Gourly last week and found no breeding. Water levels were mostly lower than expected. I'm in the process of a full report for Jim and will copy it to you.

Cheers

Grant

Grant Pearson  
Department of Conservation and Land Management  
WA Wildlife Research Centre  
Wildlife Place  
Woodvale WA 6026  
Tel: (8) 9405 5163, Fax: (8) 9306 1641  
Email: grantp@calm.wa.gov.au  
----- Original Text -----

From: "Pat and Clive Minton" <mintons@ozemail.com.au>, on 13/04/2000 1:55 PM:

Dear Grant and Allan,

1. Thankyou allan for getting the metal bands and yellow leg flags so promptly. As it happened we were not able to band any chicks from the last nine thousand nests, only 322 chicks survived the silver gull predation onslaught!

I am pleased that the SA authorities are most receptive to the recommendation for drastic silver gull control in the environs of future Banded Stilt colonies.

2. Great surprise! A yellow flag adult Banded Stilt nesting in the Lake Eyre colony. This is the first example of the intermixing of the WA and SA populations.

Would it be possible for you to prepare please, in the near future, a consolidated list of all yellow flag sightings?

3. Have you managed to carry out an aerial recce yet over the Guld fields saltlakes?

Best wishes to you both,  
Clive.

P.S. Shall I return the metal bands/yellow leg flags immediately or hold them here until we see what transpires over the next few weeks (eg. a new nesting attempt at Lake Eyre when the Queensland water arrives in early May)?

Re to be from our  
1995 letter Billed  
+ previous flagging  
offer.

details?

when?

9/4/00

**Faxed (on Fri 17/03/2000; from JL to GBP) copies of a Budget Request and a Science Project Plan for SPP 'Breeding ecology and conservation of Banded Stilt'. The Science Project Plan refers inter alia to 'Leg banding and flagging of chicks on Lakes Ballard and Marmion' in 'Jun 1995' and (under 'Phase 1 (1995-2000)'), 'Develop safe method of catching chicks. Band / leg flag chicks'.**

DEPARTMENT OF CONSERVATION AND LAND  
MANAGEMENT

14 QUEEN STREET, BUSSELTON WA 6280  
PHONE - (08) 9752 1677 FAX - (08) 9752 1432



**FAXED**  
FACSIMILE TRANSMITTAL SHEET

TO: *GRANT Peterson*

FROM: *Tom L.*

COMPANY:

DATE: *17/3/00*

FAX NUMBER:

TOTAL NO. OF PAGES INCLUDING COVER: *(8)*

PHONE NUMBER:

SENDER'S REFERENCE NUMBER:

RE:

YOUR REFERENCE NUMBER:

NOTES/COMMENTS: *Re Mongay's flight*

- a) CF (including ED / NC Division) allocation: \$5,000
- b) External allocation and source: Support to value of \$2,000 provided by mining industry.

6. PLANNED ACHIEVEMENTS FOR 1999/2000 (5-6 dot points):

- Sorting, identification and quantification of aquatic invertebrate sweep samples from 1995 breeding event at Lake Ballard.
- Identification and quantification of Banded Stilt oesophagus contents from 1995 breeding at Ballard.
- Egg laying, incubation and hatching success data to be extracted from daily photographic monitoring of quadrats established in 1995 Ballard breeding colonies.
- Data and observations from 1995 Ballard breeding event to be prepared for publication in "Emu".
- *In the event that suitable rainfall occurs, aerial surveys are proposed to determine Banded Stilt breeding locations, colony size, colony site characteristics, breeding success, etc.*
- *In the event that suitable rainfall occurs and breeding is successful, banding and flagging of Stilt chicks is proposed to determine movements, longevity, etc.*

7. 1999/2000 CF BUDGET REQUEST:

BIODIVERSITY CONSERVATION GROUP

CF BUDGET REQUESTS

1999 / 2000

1. **SPP TITLE:** Breeding ecology and conservation of Banded Stilt
2. **SPP NUMBER:** Req. No. WD/0023
3. **SCIENTIST:** J.A.K. Lane
4. **ACHIEVEMENTS IN 1998/9 (5-6 dot points):**
  - Aerial survey of limited number of known and potential breeding sites in Eastern Goldfields conducted in April 1999 following rainfalls from ex-tropical cyclones Elaine and Vance.
  - Effectiveness of March-April 1999 rainfall in providing suitable conditions for breeding activity by Banded Stilt on Lakes Ballard, Goongarrie, Marmion and Carey determined.
  - Precise location of new breeding site on Goongarrie identified.
  - Mining industry support obtained for CALM Banded Stilt research.
  - Potentially useful contacts established with mining industry.
5. **1998/9 BUDGET ALLOCATION:**
  - a) CF (including ED / NC Division) allocation: \$5,000
  - b) External allocation and source: Support to value of \$2,000 provided by mining industry.
6. **PLANNED ACHIEVEMENTS FOR 1999/2000 (5-6 dot points):**
  - Sorting, identification and quantification of aquatic invertebrate sweep samples from 1995 breeding event at Lake Ballard.
  - Identification and quantification of Banded Stilt oesophagus contents from 1995 breeding at Ballard.
  - Egg laying, incubation and hatching success data to be extracted from daily photographic monitoring of quadrats established in 1995 Ballard breeding colonies.
  - Data and observations from 1995 Ballard breeding event to be prepared for publication in "Emu".
  - *In the event that suitable rainfall occurs, aerial surveys are proposed to determine Banded Stilt breeding locations, colony size, colony site characteristics, breeding success, etc.*
  - *In the event that suitable rainfall occurs and breeding is successful, banding and flagging of Stilt chicks is proposed to determine movements, longevity, etc.*
7. **1999/2000 CF BUDGET REQUEST:**

8

- a) Operating (including requests for ED / NC Division funding):  
\$3,000 See special note at Item 10 below.
- b) Chemistry Centre:  
\$0

8. EXTERNAL FUNDING RECEIVED OR EXPECTED TO RECEIVE, AND SOURCE:  
  
There is a strong possibility of significant, external, in-kind support (\$1,000s) being provided by the mining industry and/or other sources in the event that suitable rainfall occurs in 1999/2000 or subsequent years.

9. COMPLETION DATE FOR THIS WORK (mm/yy):  
  
Depends upon timing of rainfall events and level of funding and in-kind support obtained. Rainfall events suitable for successful breeding appear to occur once in 3-10 years.

10. ANY OTHER INFORMATION RELEVANT TO BUDGET REQUEST:  
  
CALMScience funding (\$3,000) is being sought for 1999/2000 to enable a *rapid response* in the event (<50% probability) that a potentially-suitable rainfall event occurs. These funds would be used for an initial aerial survey. External funds would be sought to support follow-up work in the event that breeding colonies with a high likelihood of success are located.

11. ENDORSEMENT BY PROJECT LEADER:

**Department of Conservation and Land Management**  
**CALMScience Division**  
**Science Project Plan**

(Page 1)

**Important: Refer to the *Explanatory Notes* (Staff Guideline No. 7) when preparing an SPP.**

**PART A Title and Location**

SPP Number: [allocated by D/AA]

Request No: [allocated by WASPP]

WD/0023

Concept Plan No: [allocated by D/AA]

1. Project Title: Breeding ecology and conservation of the Banded Stilt
2. CALMScience Group: Project Team:  
 Biodiversity Conservation Aquatic Ecosystems
3. Staff [Names and estimates of percentage of time]:  

|                         |  |
|-------------------------|--|
| Supervising Scientist:  | J. Lane (15% in 1999/00)                                 |
| Other Scientists:       |  |
| Technical Officers:     | G. Pearson (2% in 1999/00)<br>A. Clarke (10% in 1999/00) |
| External Collaborators: | Dr C. Minton (Australian Wader Study Group)              |
| Volunteer(s):           | A. Chapman   |
4. a) Departmental Program(s): Nature Conservation  
 b) Land Tenure(s): Vacant crown land, pastoral lease, CALM-managed land.  
 c) CALM Region(s): Goldfields, Wheatbelt, Pilbara  
 d) CALM District(s): All within above regions.  
 e) Location of plots/transects [Name] : Not applicable
5. Related SPPs: WD/0024 (*A Directory of Important Wetlands In Australia*)
6. Proposed commencement date: Phase 1: 1995 Phase 2: 1999
7. Proposed completion dates: Phase 1: 2001 Phase 2: 2005
8. Date of submission of this Plan and signature of Supervising Scientist:

**PART B Endorsements**

9. List the relevant District Manager(s), Business Unit Manager(s), and/or Regional Manager(s) whom you have consulted about the SPP. If the SPP relates to all Regions, you should confer with the Director of Regional Services:

Goldfields Regional Manager (Ian Keally)

10. Biometrician:  
Return comments to D/AA

11. Animal Ethics Committee:  
Return comments to D/AA

12. Project Team Leader:  
Return comments to D/AA

13. Group Manager:  
Science Group Manager to forward to D/AA

14. Divisional Administrative Assistant (D/AA):  
Divisional Admin. Assistant to manage approval process, load approved SPP on WASPP, arrange filing at SOHQ, publish in CALMScience News, send photocopy of completed SPP to Supervising Scientist and notify Biometrician of SPP No., copy cover sheet to Regional Manager, District Manager and relevant Program Manager (for their information)

**PART C Relevance and Outcomes**

15. **Background:** The Banded Stilt *Cladorhynchus leucocephalus* is an Australian endemic. It nests in large colonies (up to 100,000+ pairs) on small islands (about 1-5 ha) on huge (100+ km<sup>2</sup>) claypan lakes of inland Western (mainly) and South Australia following exceptional rainfall events (c. 3-7 year intervals). Its breeding biology has been little studied, due mainly to the difficulty of finding and gaining access to breeding colonies. Nesting attempts fail spectacularly if lakes dry prematurely during breeding attempts. Few known nesting locations are within conservation reserves, and these only partly. The mining industry is showing substantial interest in mining the beds of claypan lakes and utilising them for storage / disposal of wastes and for water supply. Without an improved knowledge of Banded Stilt breeding biology and environmental requirements, CALM is not well placed to ensure conservation of the species.

16. **Project aims:**

- Determine the principal breeding locations of Banded Stilt in Western Australia and their relative importance.
- Develop an improved understanding of their breeding biology.
- Quantify key environmental factors (e.g. hydrological regime, salinity) governing breeding success;
- Identify any significant human-induced threats to nesting colonies and habitats.
- Obtain and disseminate knowledge needed to ensure conservation of the species.

17. **Anticipated project outcome(s):** Scientific and other publications that will provide information necessary to ensure that the principal breeding sites and habitats of the Banded Stilt can be adequately conserved and wisely managed.

18. **Anticipated users of the knowledge to be gained and technology transfer strategy:** CALM, Department of Environmental Protection, Environmental Protection Authority, Department of Minerals & Energy, mining and tourism industries, conservation groups. Results of Phase 1 have been transferred through articles in the media, popular and ornithological magazines, an ABC television documentary, presentation at Southern Hemisphere Ornithological Conference. Scientific publication is also proposed.

19. **Milestones [Describe tasks and when they will be completed]:**

Phase 1: (1995-2000)

|   |          |
|---|----------|
| • Aerial survey to locate Banded Stilt breeding colonies in Eastern Goldfields following passage of Cyclone Bobby.  | Mar 1995 |
| • Establishment of base camp to study Lake Ballard breeding colony  | Apr 1995 |
| • Collection of data on breeding colony characteristics, timing of nesting, clutch size, incubation period, hatching & fledging success, fledging period, lake filling / drying cycle, water chemistry. | Jun 1995 |
| • Collection of stilt adults and chicks for gut content analysis.   | Jun 1995 |
| • Leg banding and flagging of chicks on Lakes Ballard and Marmion.  | Jun 1995 |
| • Sorting, identification and quantification of macroinvertebrate sweep samples and stilt gut contents.   | Dec 1999 |
| • Extraction of clutch size, incubation period, hatching success data from photographic monitoring of 1995 Ballard nesting event.   | Dec 1999 |
| • Preparation and write-up of 1995 breeding event data and observations for scientific publication.   | Apr 2000 |
| • Publication of 1995 breeding event results in journal <i>Emu</i> .  | 2001     |

Phase 2: (1999-2005)

|   |      |
|---|------|
| • Monitor rainfall reports from Eastern Goldfields and Wheatbelt.   | 2004 |
| • <i>In the event that exceptional rainfall occurs (annual probability low), conduct aerial surveys to locate and photograph breeding colonies.</i> | 2004 |

4

- *In the event that exceptional rainfall occurs and breeding colonies become established, conduct aerial (& possibly ground) monitoring to determine colony success and major limiting factors.* 2004
- *In the event that successful fledging of chicks appears probable, 2004* → *conduct banding and leg flagging of chicks.* 2004
- Prepare and write-up of data and observations for publication. end 2004
- Publish in *Emu* or other scientific journal. 2005

#### PART D Study Design

20. Method [including statistical analysis]: Phase 1 (1995-2000): Conduct aerial survey of Lakes Barlee & Ballard following Cyclone Bobby (Feb 1995) to locate breeding colonies. Establish base camp on Lake Ballard. Establish quadrats in nesting areas for daily monitoring (photographs) to determine laying rate, clutch size, incubation period and hatching success. Collect adults and chicks to determine diet. Conduct macro-invertebrate (standardised sweeps) to monitor food availability. Install continuous recorder to monitor lake water level. Sample water chemistry Develop safe method of catching chicks. Band / leg flag chicks Conduct additional aerial surveys to monitor fledging success. Analyse results. Prepare for publication. Publish.

Phase 2 (1999-2005): Rainfall in the main breeding range of the Banded Stilt (in WA) will be monitored using daily rainfall data obtained by the Bureau of Meteorology. Following exceptional rainfall events (approx 3-7 year intervals) and reports of flooding, aerial surveys will be conducted to locate and monitor breeding colonies. Colonies will be photographed from the air and, if feasible, visited on the ground to determine number of breeding pairs, nesting and fledging success, water depths, water chemistry and food availability. Chicks will be banded and leg-flagged to obtain information on movements and longevity. Standard statistical techniques will be used where appropriate.

#### PART E Data Management and Budget

21. Voucher specimens [how many are anticipated to be collected and where will they be lodged?]: Voucher specimens (at least) from macroinvertebrate samples will be retained and curated at CALMScience Woodvale.

22. Data management [how and where are data being archived/maintained?]: The original data (field note books, other papers) and nest monitoring photographs are held by J.Lane at CALM Busselton. Data from a continuous water level recorder (Lake Ballard 1995) are on disk in a datasafe in JL's office. The 1995 macroinvertebrate samples are held and curated by A.Clarke at CALMScience Woodvale. Data to be collected (Phase 2) will be held by JL at Busselton.

23. Budget Estimate [anticipated expenditure]:

##### Consolidated Funds (CALM)

|                  | Year 1 (94/95) | Year 5 (98/99) | Year 6 (99/00) |
|------------------|----------------|----------------|----------------|
| FTEs - Scientist | 0.2            | 0.02           | 0.15           |
| FTEs - Technical | 0.5            | 0.03           | 0.12           |
| Equipment        | 0              | 0              | 200            |
| Vehicle          | 0              | 0              | 500            |
| Travel           | 0              | 0              | 500            |
| Other            | 0              | 5 000          | 1 800          |
| <b>TOTAL</b>     | <b>0</b>       | <b>5 000</b>   | <b>3 000*</b>  |

|                  | Years 7 to 10<br>(00/01 to 03/04) | Year 11<br>(2004/05) |  |
|------------------|-----------------------------------|----------------------|--|
| FTEs - Scientist | 0.05                              | 0.1                  |  |
| FTEs - Technical | 0.1                               | 0.05                 |  |
| Equipment        | 200                               | 200                  |  |
| Vehicle          | 500                               |                      |  |
| Travel           | 500                               |                      |  |
| Other            | 1 800                             | 800                  |  |
| <b>TOTAL</b>     | <b>3 000*</b>                     | <b>1 000</b>         |  |

#### External Funds

|                         | Year 1 (94/95)  | Year 5 (98/99) | Year 6 (99/00) |
|-------------------------|-----------------|----------------|----------------|
| Salaries/Wages/Overtime |                 |                |                |
| Overheads               |                 |                |                |
| Equipment               |                 |                |                |
| Vehicle                 |                 |                |                |
| Travel                  |                 |                |                |
| Other                   |                 |                |                |
| <b>TOTAL</b>            | <b>10 000**</b> | <b>1 200**</b> | <b>**</b>      |

|                         | Years 7 to 10<br>(00/01 to 03/04) | Year 11<br>(2004/05) |  |
|-------------------------|-----------------------------------|----------------------|--|
| Salaries/Wages/Overtime |                                   |                      |  |
| Overheads               |                                   |                      |  |
| Equipment               |                                   |                      |  |
| Vehicle                 |                                   |                      |  |
| Travel                  |                                   |                      |  |
| Other                   |                                   |                      |  |
| <b>TOTAL</b>            | <b>**</b>                         | <b>**</b>            |  |

\* CALMSceince funding (\$3,000 each year) is being sought from 1999/00 to 2003/04 to enable a *rapid response* in the event (<50% probability) that potentially-suitable rainfall events occur. These funds will be used for aerial surveys. External funds will be sought to support follow-up work in the event that breeding colonies with a high likelihood of success are located. In years when potentially-suitable rains do not occur (by end of April), *the funds could be reallocated* to other projects.

\*\* There is a strong possibility of significant, external, in-kind support (\$1,000s) being provided (as occurred in 1994/95 & 1998/99) to this project by the mining industry and other sources in the event that suitable rainfall events occur in 1999/2000 and subsequent years.

#### 24 Budget Actual [to be updated at the end of each financial year by D/AA and local AA]:

##### Consolidated Funds (CALM)

|                  | Year 1 (94/95) | Year 5 (98/99) | Year 6 (99/00) |
|------------------|----------------|----------------|----------------|
| FTEs - Scientist | 0.2            | 0.02           |                |
| FTEs - Technical | 0.5            | 0.03           |                |
| Equipment        | 0              | 0              |                |

|              |          |          |  |
|--------------|----------|----------|--|
| Vehicle      | 0        | 0        |  |
| Travel       | 0        | 0        |  |
| Other        | 0        | 0        |  |
| <b>TOTAL</b> | <b>0</b> | <b>0</b> |  |

|                  | <b>Years 7 to 10<br/>(00/01 to 03/04)</b> | <b>Year 11<br/>(2004/05)</b> |  |
|------------------|---|------------------------------|--|
| FTEs - Scientist |   |                              |  |
| FTEs - Technical |   |                              |  |
| Equipment        |   |                              |  |
| Vehicle          |   |                              |  |
| Travel           |   |                              |  |
| Other            |   |                              |  |
| <b>TOTAL</b>     |   |                              |  |

#### External Funds

|                         | <b>Year 1 (94/95)</b> | <b>Year 5 (98/99)</b> | <b>Year 6 (99/00)</b> |
|-------------------------|-----------------------|-----------------------|-----------------------|
| Salaries/Wages/Overtime |                       |                       |                       |
| Overheads               |                       |                       |                       |
| Equipment               |                       |                       |                       |
| Vehicle                 |                       |                       |                       |
| Travel                  |                       |                       |                       |
| Other                   |                       |                       |                       |
| <b>TOTAL</b>            | <b>10 000**</b>       | <b>2 000**</b>        |                       |

|                         | <b>Years 7 to 10<br/>(00/01 to 03/04)</b> | <b>Year 11<br/>(2004/05)</b> |  |
|-------------------------|---|------------------------------|--|
| Salaries/Wages/Overtime |   |                              |  |
| Overheads               |   |                              |  |
| Equipment               |   |                              |  |
| Vehicle                 |   |                              |  |
| Travel                  |   |                              |  |
| Other                   |   |                              |  |
| <b>TOTAL</b>            | <b>**</b>                                 | <b>**</b>                    |  |

25 Account code(s) for this SPP [allocated by Group AA]:

26 Latitude and longitude of plots/transects: Not applicable (no permanent plots/transects)

**Undated (approx. early May 1999) ABBBS 'Requisition for Banding Supplies' form in which GBP requests 1000 size 08 , 'metal SS' leg bands be issued to him ('A' Class Authority No. 831). GBP also wrote 'URGENT: NEEDED BY 10 MAY 99' on this form.**



**AUSTRALIAN BIRD AND BAT BANDING SCHEMES**  
**G.P.O. Box 8 Canberra, A.C.T. 2601**  
**Phone (062) 022 500321**  
**FAX (06) 2500314**  
**REQUISITION FOR BANDING SUPPLIES**

From: Grant Harwood  
po Box 51 Wameroo  
6065  
Debt CACM  
Is this a new address? NO  
ANPWS Authority No. 0932

Please list your requirements in the spaces provided. It is important to state the number of bands in hand for each size ordered so that we can anticipate your future requirements. When the supplies are sent to you, a receipt will be enclosed together with an unused form for your future use. PLEASE CHECK THE SIZE, METAL, PREFIX AND SERIAL NUMBERS OF THE BANDS BEFORE SIGNING THE RECEIPT AND RETURNING IT TO THE BANDING OFFICE. ANY DISCREPANCY BETWEEN THE ITEMS LISTED AND THOSE RECEIVED SHOULD BE NOTED ON THE FORM. Please consult the List of Approved Band Sizes or the recommended band size and metal for each species. Use the following abbreviations to denote the respective metals: SS — Stainless steel; AM — Aluminium; AY — Alloy; ML — Monel and IN — Incoloy.

**BANDS**

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**Article 'Leg-Flagged Banded Stilts' (including sightings received by JL to date) as appeared on pp.16-17 of WA Bird Notes No.80, Dec 1996. Draft is below (at 23/10/1996). This article inter alia reads: '... 500 Banded Stilt chicks were leg flagged and 800 banded ...'. [JL 03/02/2014: These rounded figures were based on material ready to hand at the time and the number flagged now appears to possibly be quite inaccurate, due to uncertainties about the number flagged at Lake Marmion].**

**Note that a different article with the same heading, with authorship of JL not acknowledged, appeared (page 18) in the March 1996 issue of WA Bird Notes (No.77).**

other lakes in the area.

In August, John and Jeanette Hyndes lead us to Lillian Stoke Rock in the Frank Hann National Park. Eighteen of us braved the threat of a soaking and camped out for the weekend. Little rain actually fell and everyone enjoyed the very interesting area including gnamma holes. Thirty-one species were noted, including two species of cuckoo and a pair of Redthroats. Despite hearing a Crested Bellbird at least 30 times, the elusive bird was never sighted by the ever-vigilant mob.

The absence of the often dominating Yellow-throated Miner was appreciatively noted. This was probably due to the fact that the nearest agricultural clearing was many kilometres away.

Our September project was to repeat our October 1995 Hooded Plover Survey. Twelve people participated in seven groups but only 32 Hooded Plovers were seen at four sites during the weekend. There was much more water at most sites than in 1995.

Next month, Allan Rose is demonstrating mist netting for us at Hyndes' place which should be interesting. A canoe trip is planned for November.

Kate Dawson



Chestnut Teal, male  
Drawn: Val Talbot

## ALBANY BIRD GROUP

### September Outing

For our September outing, we had hoped to spend three full days at Madgedup. This is a farm within the Shooters Hill complex situated on the Pallinup River.

Nine people arrived mid afternoon and once we had set up camp in the shearers' quarters, we all went down to the river. We saw ten species of waterbirds in just a few minutes.

We had a very pleasant evening discussing birds and wildflowers and other subjects as well! At that stage the weather was fine.

The next day five other members joined us for the day. The weather wasn't kind to us. It started to rain during the night, and the wind came up about 11 am and it blew and blew.

We all returned to the river which has been fenced off for some time. Acacias and all casuarinas are regenerating. From there we visited a large natural bushland where we were joined by Mrs. S Stone, the owner of the property. Mrs. Stone then took us to yet another area where there were lots of orchids. At this stage the wind was increasing so birding came to a halt. The group returned to the shearers' quarters for lunch.

It was decided that the situation was impossible, so we all packed up and went home. I did feel sorry for Viv Dare and

Jan Rogers who had come from Perth for the camp.

However, we did see orchids as I have not seen them for years. It seems to be a very good year for them. We also managed to see 41 species of birds. The place has great potential and we have been invited to return. I haven't a doubt we will before too long.

### October Outing

The meeting place will be the parking area, Denmark River, Denmark, to visit swampland and farming area.

Vivian McCormick

## Notices

### RAOU CALENDARS

1997 calendars are now available for purchase at Perry House. As usual, these are of a very high standard, with excellent photographs of birds and their habitats. Your purchase helps the WA Group and the RAOU national body.

### BIRDING SITES AROUND PERTH

We are progressing with the work of revising this publication, thanks to support from members

- visiting sites to check information
- providing professional advice and assistance
- loan of bird slides
- preparing bird illustrations

The Department of Land Administration has generously allowed us to use maps from Streetsmart Street Directory.

Local government departments have provided information on request.

Our WA Group Database, *WA Bird Notes* and Suburban Bird Survey are a valuable source of information on current distribution of species.

Members are helping to finance the project by sponsoring a page for \$20.00.

If you would like to be part of this project and be acknowledged as a page sponsor, we would welcome your help.

Sponsorship money can be sent to:

Birding Sites Around Perth  
71 Oceanic Drive  
Floreat WA 6014

### LEG-FLAGGED BANDED STILTS

Last year, following torrential rains and successful breeding on Lakes Ballard and Marmion near Menzies, 500 Banded Stilt chicks were leg-flagged and 800 banded (see WABN Nos 74-76 for details).

Since then, the following sightings have been reported:

| Date     | Location                | Number sighted | Distance (km) | Reported by       |
|----------|-------------------------|----------------|---------------|-------------------|
| 24.10.95 | Lake Arrow              | 1              | 110 (S)       | Andy Chapman      |
| 21.1.96  | Rottnest Is             | 1              | 610 (SW)      | Fran Head         |
| 28.2.96  | Pt Hedland<br>Saltworks | 4*             | 1075 (N)      | Grant Pearson     |
| 07.3.96  | Dampier<br>Saltworks    | 1              | 1100 (NNW)    | Steve van Leeuwen |
| 29.9.96  | Yarra Yarra Lakes       | 1              | 520 (W)       | Brenda Newbey     |

\* 3 flags and 1 band only; all other sightings are of flags.

We are very keen to get as many sightings as we can during the new few years (the flags should last that long) and the next 12 months in particular. These are the only Banded Stilts to have ever been leg-flagged and it may be many years before another opportunity to study this fascinating species arises.

So, should you sight a leg-flagged stilt we would be most grateful if you could pass the details on to Grant Pearson at CALM's Woodvale office (ph 09 405 5163 or fax 09 306 1641) or to Jim Lane at CALM's Busselton office (097 52 1677 or fax 097 52 1432).

The leg-flags are small, made of stiff yellow plastic and positioned above the 'knee'.

The information we are seeking is location, date, number of flagged stilts seen, how well-developed the breast bands of the flagged stilts were, the total number of stilts at the site and any other information of possible interest. Please also include the name of the observer and a contact number or address.

If you would like advice on where (which lakes, estuaries, saltworks, etc.) to look for Banded Stilts, please ring Grant or myself.

Also, if you are interested in joining, on a cost-sharing basis, a special search for flagged stilts this summer, please contact Grant Pearson. We are trying to organise a trip.

Hope to see you out on the briny!

Jim Lane

#### **TWITCHATHON '96 AND PRE-CHRISTMAS BREAKFAST**

We need as many teams as possible from the metro area to really try and get that telescope back from the Broome Bandits. Join the fun on 21/22 December and seek a winning score. It does not matter if you are a relatively inexperienced birder, because some of the 'older hands' will be only too pleased to include you in their team; so get your name down if you are seeking a team. Start time is 8 am on Saturday 21st and you must finish by 8 am Sunday 22nd.

There will be a breakfast fit for a King at Perry House starting at 8:30 am. All lists from the country can be faxed or phoned in after 8 am and before 8:30 am. Sadly, our country competitors will have to have their own breakfast celebrations but can combine this with a Xmas get-together. Albany have already promised at least one team so Esperance and Mandurah should at least equal this. Our new group at Narrogin may like to try their luck. We will give them a treble score for a Freckled Duck!

An open invitation to the pre-Christmas Breakfast is also extended to all those volunteers who have worked during the year to make our Group such a success. Even if you don't Twitch, come along for the fun. The Breakfast will also serve as a welcome to all new members who are especially invited to meet the old hands. Please join us for whatever reason.

There is a sheet at the Office to record your attendance so PLEASE ring the volunteer and have your name included. This will enable our catering to be adequate.

There is also a sheet on which you should put the name of your TWITCHATHON TEAM and the leader's name and contact number.

Anyone who would like to take part please ring Clive Napier on (09) 332 7265 and we will find a group for you.

#### **A CALENDAR OF EVENTS IN THE BIRD WORLD**

To increase the public's understanding of birds and their routines it is proposed to include a regular item in *Earth 2000*. It could possibly be prepared for monthly publication.

The idea is to highlight those bird events which occur regularly. Such events might include arrivals and departures (waders, cuckoos, bee-eaters, etc.), territorial behaviours (magpies), unusually large gatherings or the occupation by particular species of specific habitats. It would be valuable also to describe phenomena which are determined by such events as irregular weather conditions.

Contributions are therefore sought from WA Group members who know of some of these chronological events. Please forward your ideas to the RAOU (WA Group) office.

#### **OFFICE VOLUNTEERS**

The RAOU office at Perry House serves a very useful purpose in linking RAOU activities with the general public, as well as being open Monday-Friday 9:30 am - 12:30 pm for the sale of books, calendars and cards to anyone who ventures in.

All this would not be possible without the band of enthusiastic volunteers who throughout the year provide this service for the WA Group. We are served extremely well by our volunteers and are the envy of birding organisations in other states.

Raise your glass to them this Christmas and continue to be aware of the role played by the many volunteers in our very active organisation.

Max Bailey

#### **REQUEST FOR INFORMATION: POLLINATION OF WEST AUSTRALIAN NATIVE PLANTS**

I have just started compiling a database on existing records (published or unpublished) of pollination of native WA plants by vertebrates and invertebrates, as a contract for the WA Naturalists Club, and I would welcome any observations that would expand this database. Unpublished observations from your notebooks would be particularly welcome. Most of the observations will probably be of flower visitors rather than confirmed pollinators, and it would be useful to me to know whether the visitors to the flowers were after nectar, pollen or insects. Ideally, I would like identifications of plant and pollinator as accurate as possible, as well as location and date information. However, any observations would be useful.

I would be most appreciative of any observations to increase the database which I hope to complete by August 1997.

I can be contacted at the Research Laboratory at King's Park at:

lzb@kpbg.wa.gov.au (Email)

or

(09) 480 3640 (phone)

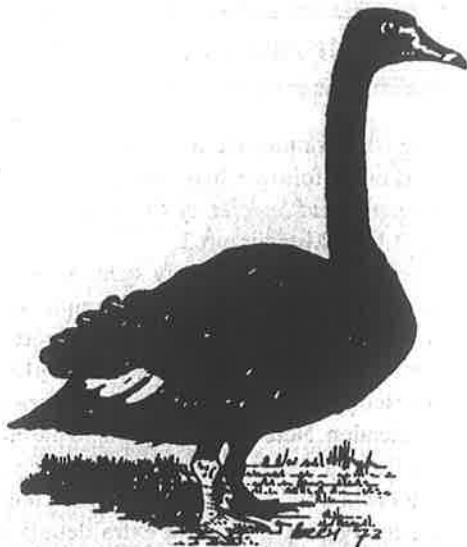
or

(09) 480 3641 (fax).

Liz Brown

#### **"BOP WATCH": A NATIONAL SURVEY OF OUR BIRDS OF PREY**

The diurnal birds of prey are top predators which, together with their relatively high visibility and their known sensitivity to environmental conditions, makes them ideal 'indicator



# Western Australian Bird Notes

Quarterly Newsletter of Birds Australia WA  
(Royal Australasian Ornithologists Union)

No 80 December 1996

## LITTLE PENGUINS ON PENGUIN ISLAND

One of the WA Group's newest members, Dr Belinda Cannell of Biological Sciences at Murdoch University, is conducting a detailed study of Little Penguins at Penguin Island, and is seeking interested (and trainable) volunteers to help radio-track some of the birds. Belinda has provided the following story for Bird Notes, and can be contacted by prospective volunteers on 09 360 2202 (bus hours) and 09 272 4079 (after hours). Please contact her and help with this fascinating work; Eds.

### STUDY ON LITTLE PENGUINS

The Little Penguin *Eudyptula minor* colony on Penguin Island is the only one of significant size on the west coast of Australia, and is estimated to have a current population of about 1000-1200. It is a long-established colony but is very isolated; the nearest colonies of any size are more than 1500 km away. Little Penguins do not breed on the Western Australian mainland and their absence from many islands around Perth (e.g. Rottnest Island) implies that, as well as breeding sites free from predators and disturbance, they require additional resources available only on or near Penguin, Garden and Carnac Islands. The most probable requirement is access to a reliable, year-round supply of small, schooling fish within 5-10 km of their breeding colony.

Evidence from penguin populations throughout Australia indicates that their numbers are declining, particularly those populations close to expanding urban areas. The colony on Penguin Island is only 600 m offshore from the suburbs of Rockingham and thus is the closest WA penguin colony to areas of high density urban development. Growing demand for recreational and commercial access to coastal venues will obviously continue to place pressure upon the small, isolated and unusual penguin colony on Penguin Island. In addition:

- the human population of Rockingham has doubled over the last five years and is projected to treble in size over

the next 20 years;

- the number of recreational boats registered in Western Australia rose from 20 000 in 1970, to 40 000 in 1980 and 70 000 in 1990;
- trawl and beach seine fisheries operate in and around the Marine Park.

The penguins on Penguin Island have been studied by Murdoch University researchers since 1984. In 1986, 55 nesting boxes were placed in areas with different levels of human disturbance. These boxes have been visited weekly since their placement, allowing the collection of information on the condition of the penguins throughout the year, how often they return to nest-boxes, when they breed, how successfully they breed, and in a limited fashion, their diet. However, it is not known where the penguins feed, when they feed, nor whether these habits change throughout the year. Visual tracking of penguins at sea is very difficult and satellite tracking is prohibitively expensive; at present radio-tracking is the best way to determine their foraging patterns.

We have joined forces with a local community group — the Friends of Shoalwater Islands Marine Park (FSIMP), and together obtained a grant from the Gordon Reid Foundation for Conservation. Murdoch University has obtained extra funding from Port Kennedy Resorts Pty Ltd. These funds are also to be used to gather information on the diet of the penguins throughout the year, as well as the location, abundance and size distribution of the prey species (or bait fish) taken by Little Penguins in the project area.

Anyone who has done any radio-tracking will agree that it is a very costly exercise, both in monetary terms and the number of hours over which the animals must be tracked, and hence the large number of personnel required. We will be attaching temporary lightweight and streamlined transmitters on ten birds and tracking them concurrently from three sites over a 10-day period. The tracking sessions will occur at four

**Fax (23/10/1996) from JL to John Blyth with typescript of article 'Leg-Flagged Banded Stilts' (including sightings received by JL to date) for December 1996 issue of WA Bird Notes. Inter alia it states that the final numbers banded and flagged at Lakes Ballard and Marmion in 1995 were 500 leg-flagged and 800 leg-banded. [JL 03/02/2014: These rounded figures were based on material ready to hand at the time and the number flagged now appears to possibly be quite inaccurate, due to uncertainties about the number flagged at Lake Marmion].**

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

13.

**FAXED**

TO: JOHN DLYTH .....

URGENT: YES / NO

AT: WRC .....

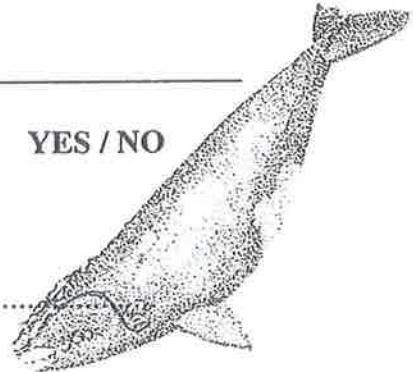
Fax No. ....

FROM: JIM LANE .....

DATE: 23/10/96

Your Ref: .....

Local Ref: .....



Have Enclosed attached article for see  
name of WASHN to you today Clear

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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Also, if you are interested in joining, on a cost sharing basis, a special search for flagged stilts this summer, please contact Grant Pearson. We are trying to organise a trip.

Hope to see you out on the briny!

Jim Lane

23/10/96

## LEG-FLAGGED BANDED STILTS

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Jim Lane

23/10/96

Fax (14/10/1996) from CDTM to JL that reads, *inter alia*, 'Re slides [35mm photos]. I don't think I need the banding ones' [for a BaSt presentation CDTM was to give in New Zealand 'next week']. Perhaps CDTM took some photos while banding and flagging 10 BaSt chicks on his own on Lake Ballard on 13/04/1995?

14/10/96

Fax to Tim Lane CALM Russellton 097-521-432

14/10/96

How thoughtful of you to send me the two OHPs. Many thanks,  
I will use them in New Zealand later this week!

It also seems to me that a photocopy (not OHP) of the sheets  
of data you showed in your talk would also be useful to  
me. They may contain some facts I don't remember &  
will also ensure we tell the same story. Could you fax  
them to me please?

(Re slides. I don't think I need the banding ones.) And I  
don't think I've got anything that you haven't. If I do come  
across something I'll copy it to you.

Great to see you & to meet Garrett. I have you both  
on the 'provisional' list for Aug - Oct 1998!

Best wishes, Clive

03-9589-4901

**Program and Abstract of presentation titled 'Banded Stilt Breeding at Lake Ballard, Western Australia' by JL, GBP & CDTM (presented by JL at SHOC in Albany, WA, on 07/10/1996. The presentation included information about BaSt leg-banding and leg-flagging activities at Lake Ballard (and Lake Marmion) by the authors in 1995.**

**Wader migration strategies in the Australasian- Asian Pacific flyway**

C Minton (Wader Studies Group, Australia)

A comprehensive analysis of all recoveries of waders banded in the Australian-East Asian Flyway, together with sightings of colour leg-flagged birds, has been undertaken. The information will be used to outline migration routes and key stopover locations for different species. Weight data collected on migrants prior to departure will also be used to delineate the different migration strategies employed by various species in the flyway. Such data are the foundation for conservation initiatives now being promulgated, including the Australasian-East Asian Flyway Shorebird Reserve Network.

**Banded Stilt breeding at Lake Ballard, Western Australia**

J Lane (WA Department of Conservation and Land Management, Australia), G Pearson (WA Department of Conservation and Land Management, Australia) and C Minton (Wader Studies Group, Australia)

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 380mm 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 (60,000ha). 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.

**Conservation of endemic New Zealand waders**

R Pierce (Department of Conservation, New Zealand)

New Zealand has nine species of endemic waders, three of which also exhibit sub-specific variation. Of the nine endemic species, eight are considered threatened. The rarest taxa are the Chatham Island Oystercatcher (*Haematopus chathamensis*), Shore Plover *Thinornis novaeseelandiae*), Black Stilt (*Himantopus novaezealandiae*), and the southern sub-species of New Zealand Dotterel (*Charadrius obscurus*), each of which numbers fewer than 150 individuals. Management programmes for all species have focused on combinations of habitat restoration, predator control, public awareness, captive breeding and release, translocations and pest contingency planning. Habitat restoration has focused primarily on mainland sites, particularly riverbeds and other wetlands which have become infested with weeds. This is best illustrated by Project River Recovery in the MacKenzie Basin where clearance of willows from riverbeds has resulted in recolonisation and breeding by four endemic species of wader, and other riverbed birds. Some predator control has been undertaken, with varying success, for Black Stilt nest protection, and elsewhere for southern and northern races of the New Zealand Dotterel and Variable Oystercatcher. Public awareness programmes have been successful in increasing the productivity of shorebirds generally, particularly on North Island beaches where many breeding grounds are fenced off from an increasingly beach-going public. Captive breeding programmes for the Black Stilt have resulted recently in the release of up to 30 juveniles (or sub-adults) into the wild each year, with some of these birds being recruited into the Black Stilt population. Shore Plovers have been raised in captivity in recent years, and two experimental releases on to mammal-free islands off the New Zealand mainland have taken place, the first failing because of predation by moreporks (*Ninox novaezealandiae*) and dispersal of survivors to the mainland. Further releases of captive-reared

|      |  |   |   |
|------|--|---|---|
| 1540 | <b>Avian diversity and insect-induced dieback in remnant eucalypt woodlots</b><br>M.Grey (La Trobe University, Australia), M Clarke (La Trobe University, Australia) and R Loyn (Victorian Department of Natural Resources and Environment, Australia) | Nocturnal habitat use and foraging behaviour of Pacific Golden Plover ( <i>Pluvialis fulva</i> ) in northern NSW<br>D.Rohweder (Southern Cross University, Australia)   | Fire and its impact on avian population dynamics<br>B.Baker, B Dettmann and S Wilson (Australian Nature Conservation Agency, Australia) |
| 1600 | <b>AFTERNOON TEA</b>   |   |   |
|      | <b>EFFECTS OF FIRE AND HABITAT FRAGMENTATION ON BIRD COMMUNITIES (CONT.)</b><br>(Flinders Room)<br>Chair: D Saunders (CSIRO Division of Wildlife and Ecology, Australia)   | <b>WADER BIOLOGY AND MOVEMENTS (CONT.)</b><br>(Adelaide Room)<br>Chair: P Hockey (FitzPatrick Institute of Ornithology, South Africa)   |   |
| 1630 | <b>Biology of the Blue-breasted Fairy-wren in a fragmented landscape in the wheatbelt of Western Australia</b><br>M.Brooker (CSIRO Division of Wildlife and Ecology, Australia)  | <b>Wader migration strategies in the Australasian- Asian Pacific flyway</b><br>C.Minton (Wader Studies Group, Australia)  |   |
| 1650 | <b>Use of remnant forest habitat by birds during winter in subtropical Australia: patterns and processes</b><br>C.Catterall, M.Kingston and K.Park (Griffith University, Australia)  | <b>Banded Stilt breeding at Lake Ballard, Western Australia</b><br>J.Lane (WA Department of Conservation and Land Management, Australia), G.Pearson (W A Department of Conservation and Land Management, Australia) and C.Minton (Wader Studies Group, Australia) |   |
| 1710 | <b>Habitat dynamics, species interactions and habitat models: a case study of the White-winged Chough and the Australian Magpie</b><br>S.Cox and J.Bauer (Charles Sturt University, Australia)   | <b>Conservation of endemic New Zealand waders</b><br>R.Pierce (Department of Conservation, New Zealand)   |   |

## TUESDAY, 8 OCTOBER

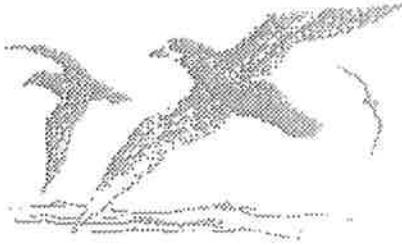
|             |   |
|-------------|---|
| 0830 - 1600 | MID-CONGRESS FIELD TRIPS                  |
| 1930 - 2300 | Optional Congress Dinner at Pyrmont House |

## WEDNESDAY, 9 OCTOBER

|      |  |  |
|------|--|--|
| 0900 | <b>PLENARY LECTURE (Flinders Room)</b><br>Chair: I.Rowley (CSIRO, Australia)<br><b>Southern perspectives of bird breeding systems</b><br>M du Plessis (FitzPatrick Institute of Ornithology, South Africa) |  |
| 1000 | <b>MORNING TEA</b>   |  |
|      | <b>BREEDING BIOLOGY IN BIRDS</b><br>(Flinders Room)<br>Chair: I.Rowley (CSIRO, Australia)  | <b>DISTRIBUTION AND ABUNDANCE OF BIRDS</b><br>(Middletons Room)<br>Chair: D.Dow (Consultant, USA)  |
| 1030 | <b>Avian adaptations to the deserts of the Northern and Southern Hemispheres: a comparison</b><br>G.Maclean (University of Natal, South Africa)  | <b>Use of the Australian Bird Count to identify important bird areas</b><br>S.Ambrose (RAOU, Australia)  |
| 1050 | <b>Food division in the Arabian Babbler nest: adult choice or nestling competition?</b><br>R.Ostreicher (Tel-Aviv University, Israel)  |  |
| 1110 | <b>Life history in Australian honeyeaters: influence of phylogeny and ecology</b><br>H.Ford (University of New England, Australia)   | <b>Endemic bird areas in the southern hemisphere and their relevance to conservation</b><br>A.Stattersfield (BirdLife International, UK)                                   |
| 1130 | <b>The annual cycle of doves from regions with contrasting precipitation patterns in Venezuela</b><br>C.Bosque, M.Pacheco and S.Garcia (Universidad Simon Bolivar, Venezuela)                              | <b>The effect of animal and observer movement on line transect density estimates</b><br>L.Chambers (Deakin University, Australia)  |
| 1150 | <b>Breeding behaviour of the semi-nomadic Regent Honeyeater</b><br>D.Geering (Independent, Australia), D.Oliver (University of New England, Australia) and S.Jessup (Independent, Australia)               | <b>An investigation into bird communities of farm windbreaks and related vegetation</b><br>C.Kinross (Orange Agricultural College and Charles Sturt University, Australia) |
| 1210 | <b>The breeding biology of an Indian Ocean population of Wedgetailed Shearwaters <i>Puffinus pacificus</i></b><br>M.Garkaklis and C.Sims (Murdoch University, Australia)                                   | <b>The distribution of birds in suburban Perth</b><br>M.Bamford (Consultant, Australia)  |



Western Spinebill *Acanthorhynchus superciliosus* (Wells/CALM)



# Southern Hemisphere Ornithological Congress

**The ecology, conservation and management  
of southern hemisphere birds**

**ALBANY, WESTERN AUSTRALIA  
OCTOBER 5-9, 1996**

## **PROGRAM & ABSTRACTS**

**Hosted by the Royal Australasian  
Ornithologists Union**



**A Table providing details of the five BaSt leg-flag sightings shown in a map presented by JL at the 'Southern Hemisphere Ornithological Conference' in Albany, WA, on 07/10/1996. This Table, which was not included in the presentation, indicates that 500 BaSt chicks were flagged and 800 chicks were banded in 1995 (at Lakes Ballard and Marmion). [JL 03/02/2014: These rounded figures were based on material ready to hand at the time and the number flagged now appears to possibly be quite inaccurate, due to uncertainties about the number flagged at Lake Marmion].**

## LEG FLAG & BAND SIGHTINGS

**500 CHICKS FLAGGED & 800 CHICKS BANDED**

**CHICKS FLEDGED MAY-JULY 1995**

| <b><u>DATE</u></b> | <b><u>LOCATION</u></b> | <b><u>No.</u></b> | <b><u>KM</u></b> | <b><u>DIR'N</u></b> | <b><u> DAYS</u></b> |
|--------------------|------------------------|-------------------|------------------|---------------------|---------------------|
| 24.10.95           | L. ARROW               | 1                 | 110              | S                   | 90 - 160            |
| 21.1.96            | ROTTNEST               | 1                 | 610              | SW                  | 180 - 250           |
| 28.2.96            | PORT HEDLAND           | 4*                | 1075             | N                   | 220 - 290           |
| 07.3.96            | DAMPIER                | 1                 | 1100             | NNW                 | 230 - 300           |
| 29.9.96            | YARRA YARRA            | 1                 | 520              | W                   | 430 - 500           |

\* 3 flags and 1 band. All other sightings are of flags.

## LAKE BALLARD - MAIN COLONY

### 1995 BREEDING CYCLE

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

#### TIME REQUIRED FOR MIGRATION & BREEDING

|                      |                      |
|----------------------|----------------------|
| <b>FIRST BIRDS</b>   | <b>82 - 86 DAYS</b>  |
| <b>99% OF COLONY</b> | <b>93 - 97 DAYS</b>  |
| <b>LAST BIRDS</b>    | <b>&lt; 102 DAYS</b> |

**THE BANDED STILT**  
***CLADORHYNCHUS LEUCOCEPHALUS***  
**IN**  
**WESTERN AUSTRALIA**  
  
**OR**  
  
**“BONKING IN THE BRINY”**

Overlects used to give

Banded Shelt

falls to

Shm. Mem. Com. Engen

7/10/96

at Albany

**List of slides (photos) used in Banded Stilt talks given by JL to the SHOC  
at Albany on 07/10/1996 and the RAOU WA Group in Perth on  
25(?)/09/1996. Eleven of these photos were of BaSt leg-banding and leg-  
flagging activities by JL & ACI on Lake Ballard in late April – early May  
1995.**

(Sotis bl.)  
(79)

+ sequence

② Slides used for Banded Stilt talk  
to Sth. Amer. Orn. Congress 7/10/96

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

| ①  | Plot ID  | Subject  | ② |
|----|----------|--|---|
| 1  | 486      | Stilts   |   |
| 2  | " 22 "   | Later Banded aerial (15/3/95)                          | ✓ |
| 3  | " 09 "   | " " - 2 stilt (15/3/95)                                | ✓ |
| 4  | " 06 "   | " " 1st colony (15/3/95)                               | ✓ |
| 5  | " 21 "   | Helicopter at land (15/3)                              | ✗ |
| 6  | " 25 "   | Camp Island aerial (15/3)                              | ✓ |
| 7  | " 34 "   | Helicopter on Camp Island (15/3)                       | ✓ |
| 8  | " 37 "   | GDP carrying camera case (15/3)                        | ✗ |
| 9  | " 05 "   | GDP + CDTM approaching island (15/3)                   | ✓ |
| 10 | " 07 "   | • " + Mag Puff nest to nesting birds (15/3)            | ✗ |
| 11 | " 18 "   | nesting stilt (4/95)                                   | ✓ |
| 12 | " 33 "   | stilt take off <sup>nesting</sup> island (15/3)        | ✓ |
| 13 | " 30 "   | stilt return to nests (15/3)                           | ✓ |
| 14 | " 10 "   | GDP + CDTM photograph nesting birds (15/3)             | ✗ |
| 15 | " 09 "   | washing / preening / drinking stilt (15/3)             | ✗ |
| 16 | " 17 "   | 2 stilt <sup>back</sup> , feathers up, in water (15/3) | ✓ |
| 17 | " 22 "   | 2 stilt drinking (15/3)                                | ✓ |
| 18 | " 25 "   | 2 stilt copulating in water (15/3)                     | ✓ |
| 19 | " 26 "   | ~ ~ ~ - - -  | ✗ |
| 20 | " 19 "   | ~ ~ ~ - - -  | ✓ |
| 21 | " 29 "   | ~ ~ ~ - - -  | ✓ |
| 22 | " 20 "   | ~ ~ ~ on land ~  | ✓ |
| 23 | " 13 "   | Oliver + Mag Puff mark out quadrat (15/3)              | ✗ |
| 24 | " 22 "   | pink banded quadrat of nests + eggs (15/3)             | ✓ |
| 25 | " 31 "   | eggs (numbered) in nests + peg (15/3)                  | ✓ |
| 26 | 4 " 04 " | Trider + 2 pints + Ago + Great (4/95) (29/3)           | ✗ |
| 27 | 1 " 36 " | composite nest to Common Labe (4/95) (31/3)            | ✗ |
| 28 | 3 " 04 " | pints with gear entering Common Labe (31/3)            | ✗ |
| 29 | blanks   | pints of gear entering " " (31/3) — Most handle plots  | ✗ |
| 30 | 3 " 05 " | loading pint onto trider (31/3)                        | ✗ |

| Sequence<br>② | Sequence<br>① | Photo ID   | Subject   |
|---------------|---------------|------------|---|
| ✓ 19          | 31            | 3 "08"     | Argo putting punt out of crossover lube - (31/3) ✓                          |
| ✗             | 32            | 3 "23"     | " " - between lubes (31/3) ✗  |
| ✓ 20          | 33            | 3 "11"     | Argo launching punt into Lake Bellard. (31/3)                               |
| ✓ 21          | 34            | 3 "28"     | Walking punt of gear into " " (31/3)  |
| ✗             | 35            | blank      | Unloaded gear at Camp Island - Mark Lembie photo                            |
| ✗             | 36            | 3 "25"     | Viewing 1st colony from Camp Island (31/3)                                  |
| ✗ ✗           | 37            | 11 "04"    | Mark Lembie following <sup>nesting birds</sup> (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 NOUT - eggs in nests - (1/4)  |
| ✗             | 42            | Box 6 "04" | Quadrat 13 14 15 16 - 1m frame - eggs (4/4) <sup>2nd colony</sup> .         |
| ✗             | 43            | "09"       | 3 eggs + markings (collected) - (8/4)                                       |
| ✗             | 44            | "05"       | Chicks of 3 + 4 eggs (n) - (8/4)  |
| ✓ 23          | 45            | Box 6 "19" | Quadrat NOUT - eggs in nests - (4/4) - <sup>a few</sup> <sub>chicks</sub> ? |
| ✓ 24          | 46            | Box 6 "20" | " " - eggs + chicks <u>closeup</u> (4/4)                                    |
| ✗             | 47            | Box 6 "21" | " " - eggs - (4/4)  |
| ✓ 25          | 48            | Box 7 "28" | " " - mainly chicks in nests (5/4)  |
| ✗             | 49            | "04"       | Closeup of chick + eggs in <sup>1</sup> 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 Adelt + 1 chick in nests (Mark Lembie)                           |
| ✗             | 53            | 11 "22"    | Adult leading chicks towards shore (4/95)                                   |
| ✓ 27          | 54            | 11 "24"    | " " - - - - - - - - (4/95)  |
| ✓ 28          | 55            | 11 "25"    | " " defending chicks at shoreline (4/95)                                    |
| ✓ 29          | 56            | 11 "19"    | " " pushing smaller 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"     | more " " - - - - - (7/4)  |
| ✗             | 60            | 9 "05"     | 1 staying chick behind family on water (7/4)                                |

| Sequence | ① Sequence | Photo ID | Subject   |
|----------|------------|----------|---|
| X        | 61         | "01"     | creche of large chicks - lake Tarlee (furnair)    |
| X        | 62         | "09"     | Allen Clouse standing in punt - search for chicks |
| X        | 63         | "11"     | " " Speeding in punt - - - - -                    |
| X        | 64         | "25"     | " " slow in shallow water " - - -                 |
| ✓ 32     | 65         | "29"     | scraping chicks up with plantation 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 chick (in punt)              |
| X        | 71         | "25"     | me banding chick " " "                            |
| ✓ 36     | 72         | "21"     | Allen - hand holding flagged/banded chick .       |
| X        | 73         | "01"     | cloud cover (5.95)                                |
| X        | 74         | "31"     | nests washed away (5.95)                          |
| X        | 75         | "        | "Agincourt Island" furnair .                      |
| X        | 76         | 1 "17"   | another nesting island furn air (30/3)            |
| X        | 77         | 1 "09"   | yet " " " - - - - (30/3)                          |
| X        | 78         | 1 "11"   | " " - - - - (30/3)                                |
| X        | 79         | 2 "14"   | air photo of tractor on bed of lake .             |

**'Rough jottings [by JL] made in preparation for talk at the 'Sthn. Hem. Orn. Congress' to be held in Albany on 07/10/1996. Includes calculations of numbers of BaSt chicks banded and flagged at Lakes Ballard and Marmion in 1995. Note: scanned over two pages due to length.**

These calculations seem to indicate:

**490 incoloy leg-bands of size 8 were initially issued by ABBBS and another 200 were subsequently issued. If correct, a total of 690 leg-bands were issued for use at Ballard & Marmion in 1995.**

**Some uncertainty about the number of chicks that were banded and/or flagged. These calculations were incomplete. Work on these calculations.**

- ~~descriptions~~ frequency of 7.9, 7.8, 8.7
- common ~~sp~~ ~~sp~~ ~~sp~~
- get you looking for leg-bands

0 cm on 14/9.

Banded Sweep samples =  
Sweep samples -

↑  
Wrong!

First described in 1881

Existing literature

Clutch size

15 quadrats  
2.5 x 5 m

Brood size - 2.9, 2.7, 2.6 then 2.4 on water (1-2 days after hatching)

Hatching success - 2000 chicks hatched = 2 hrs.

Fluffy success



Individual colour marks:

Banded -  $\left[ \begin{array}{l} 10 \text{ (cine)} \\ 200 \text{ (Total)} \end{array} \right] \begin{array}{l} 2+ ? \\ \hline \end{array} \right] \begin{array}{l} \text{Total } 690 \text{ (200?)} \text{ banded} \\ \text{Banded} \end{array}$

Leg Flagged -  $\left[ \begin{array}{l} 10 \text{ (cine)} \\ 195 + 260 + 20 = 475 \end{array} \right] \begin{array}{l} 170 \\ \hline \end{array} \right] \begin{array}{l} 500 \text{ leg flagged?} \\ \text{Banded} \\ \text{Flagged} \end{array}$

Sightings - 1 Little Tern (24 km off Rottnest) 24/10/95 -  
(Rottnest 21/1/96)

1 Dampier Sut 7/3/96 -

3 Pine Islet sightings 28/2/96 -

1 4 cm chick

7/9/96 -

Egg collected - DNA

Predators - Little cormorant (mainly dead, 2 live)  
WT Eagle (1 live)  
Cat (potential)  
Not guilty.

Waterfall on Cossack Lake breeding.

ABC film:



ROUGH JOTTINGS MADE IN PREPARATION FOR TRAIL

AT "STHNS. 14th. ANNU. CONGRESS", Albany 7/10/96

sway rate?

log data logger

Water depths: 4

Sediment:

PT: 7.9, 7.8, 8.7

Sweep samples:  
just samples -

approx 50 cm - on 15/3

(40°)

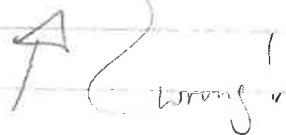
"back to max level" on 10/4 (after 70 mm rain)

51 cm on 14/4 (at N side Camp I)

54 cm on 28/4 .. ..

44 cm on 4/5 .. ..

0 cm on 16/9 ..



Chick size

15 quadrats  
2.5 x 5 m

brood size - 2.9, 2.7, 2.6 then 2.4 on water (1-2 days after hatching)

hatching success - 2000 chicks hatched = 2 hrs.

fluffy success

Individual colour marks:

Banded -  $\left[ \begin{array}{l} 10 \text{ (Choc)} \\ 200 \text{ (Total)} \end{array} \right] \frac{2}{3} + ?$  Total 690 (700) birds  
Banded 1100 - 1100 -  
Leg Flagged -  $\left[ \begin{array}{l} 10 \text{ (Choc)} + 170 \\ 195 + 260 + 20 = 475 \end{array} \right] 500 \text{ by flag?} \quad \begin{array}{l} \text{Banded} \\ \text{1100} \end{array}$   
Banded 1100 - 1100 -

Sightings - 1 Little Tern (24 km of total) 24/10/95 -  
1 Rottnest 21/1/96 -  
1 Dampier Sest 7/3/96 -  
3 Pine Islet sectors 28/2/96 -  
1 York Islet 19/96 -

Egg collected - DNA

Predations - Little core (mostly dead, 2 live)  
WT Eagle (1 live)  
Cat (potential)  
Not guitars.

Waterfall on Crossover Lake breeding.

**Fax (05/08/1996) from JL to CDTM with draft abstract ('Any changes desired?') for presentation titled 'Banded Stilt Breeding at Lake Ballard, Western Australia' by JL, GBP & CDTM, to be presented by JL at SHOC in Albany, WA, on 07/10/1996. The presentation would include information about BaSt leg-banding and leg-flagging activities at Lake Ballard (and Lake Marmion) by the authors in 1995. Finalised abstract, as submitted, is also here.**

**FAXED**

1 Page fax

21.

**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 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 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.

Clive Minton

A draft abstract - ?

described -

Any changes

5/8/96

(fax 097 521432)

**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.  
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Hardcopy (16/05/1996) of document 'Banded Stilt *Cladorhynchus leucocephalus* Seminar' '... compiled [by JL] 14-16 May 1996 in preparation for seminar at Woodvale [CALM's Wildlife Research Centre] on Fri 17 May [1996]. Words and sentences relating to banding and flagging, including numbers banded/flagged, have been highlighted in green (by JL on 29/01/2014). Reference made to '500 flags made by VWSG (Mark Barter)' [actually Mark Barter, since deceased].

This printout appears to be of "STILTSEM"  
(Last Modified 16/05/1996 5:12 PM) 10/01/2014

## BANDED STILT CLADORHYNCHUS LEUCOCEPHALUS SEMINAR

This material compiled 14-16 May 1996 in preparation for seminar at Woodvale on Fri 17 May.

- Info in this document has been drawn from my BaSt files (Vol 1 gone thru carefully, Vol 2 less so, stopping just before reaching transcript of Clive comments while viewing uncut stilt footage from Ballard), also from the 2 Wingspan articles (Vol 5 Nos. 2&3), *also my note diary*.
- Still need to: redo Vol 2, go thru my notebooks, get data that Grant, Alan and Andy have yet to give me, get water analysis results, do sweep and gut contents, do photos of nest quadrats, data from logger (I think Grant has sent it to me).

The Banded Stilt is: *Cladorhynchus leucocephalus* *Slide of stilt*  
description? *at Lake Barlee*  
only found in Australia, monospecific genus, member of .. family  
distribution, numbers

wt 220-260  
3m (longest)

first discovered in 18.. by .. at ..

breeding a mystery until 1930 when recorded at.. by .. colony size ..

since then, breeding recorded at .. (sites, distribution) Only about 20 nesting events ever recorded (3 in SA and rest in WA). Most nesting attempts only found when chicks mobile or breeding over (deserted colonies).

breeding actually witnessed on few occasions, due to difficulty of finding and gaining access to colonies  
Chicks on road at Menzies. (1400 walked thru town?, 500 killed on road?)

Grant and I have taken an interest in locating breeding sites since 19.. when he and Phil Fuller found .. at Lake Barlee.

Since then we have:

Barlee in 19.. with Roger Jaensch and found ..

Primary interest is in identifying significant breeding sites and any threats, conservation needs

In Feb 95, Tropical Cyclone Bobby dumped 385 mm of rain to north of Kalgoorlie in 4 days (25-28th) of continuous rain.

Stilts left coastal sites e.g. Creery lagoon.

We planned an air survey of .. for

Clive Minton contacted us. He was passing thru Kalgoorlie on .. and interested in flying with us sharing costs.

Jeremy Hogarth of ABCTV Natural history (who Grant had met on Broome wader expedition) also contacted us to see what we were doing 'cause they wanted to film Banded Stilts nesting (waiting for .. years since meeting Clive?).

Grant flew to Kal on .. to join Clive for flight.

### Sun 12 March Air survey

Grant & Clive flew Barlee, Ballard and Marmion Lakes (previous nesting locations) 150-250 km N of Kal on Sunday 12 March, 16 days after 4 days rain started. 4.5 hrs searching. *1004 start count*

0950 hr arrived Marmion  
1014 ~ left Marmion  
1018 ~ arrived Ballard (End)

102 hr leave Ballard.  
1023 ~ arrived Barlee

Barlee: 20 000, all seemingly paired but no sign of colony. Had the least water of the three lakes. *1045 end survey* *(4hr?)*

Ballard: All birds on water were paired. 10 000 birds, half (5000) at colony (1st) of around 2000 nests. At core of colony incubation appeared to have begun.

Not equipped to gain access to colony.

Luck. Found a Jet Ranger helicopter in Kalgoorlie with a spare day. Agreed to share heli cost with Clive 50:50. (Pilot + 3 or 4 + hide; \$695/hr; 1hr each way). Clive rang me to convince of value. On Tues 14th he faxed me a draft research program.

### Wed 15 March 1995, Clive Minton, Marj Reni, Grant, me. Helicopter to Lake Ballard

"Photo 6 at the north end of Marmion" *between 1004 hrs + 1014 hrs*

"Photo 8 flooded station" *between 1014 + 1018 hrs*

"Photo 9 East end of Ballard" *between 1018 + 1023 hrs*

*between 1018 + (say) 1025*

I flew to Kalgoorlie from Perth 0615 hrs on Wed 15 March for helicopter trip (returned to Perth same evening, (with Grant?)).

Grant, Clive, Marj Reni (VWSG) (staying at Prospector Caravan Park) and I flew to Ballard colony on Wed 15 March 1995.

Perfect island for helicopter adjacent, even shade. We landed 600m away from nesting area without disturbing the birds.

Circled island first for photographs of extent of nest area (see folios 14-16 for map (from my air photos) of nesting area on this day).

Landed, walked, waded to nest island. Found we could sit 10-20m from nesting birds.

Observed plumages, nesting behaviour, eggs, staked out and phot'd (to see how many nests, eggs and eggs/nest) some quadrats to ...., marked eggs in c250 nests for determination of clutch size, nesting desity, hatching success etc .. (We marked every egg in every nest in an area (still laying) outside the quadrats with the number of eggs in that nest), photographed birds.

Colony now 4500 nests (from 2000 in 3 days).

Copulation attempted everywhere, 45 seconds each, up to 20 visible at one time.

Nests contained 1-5 (mostly ..) eggs, colony still growing. Assuming laying rate of 1 per day, the first eggs (i.e. of the nests containing 5 eggs, and also assuming they were all layed by one bird) were layed around 8 March, 12 days after 4 days rain started and only 8 days after it finshed! *3 days → 12 days*

Frenzied activity - pairing, fighting, copulating.

One third of birds did not have complete plumage. 10% had no band at all. Yet doing everything including copulating (both males and females) and incubating.

Back plumes.

Predators?

Incubating adults dunking belly feathers in water and having drink before returning to nest (hot day).

Spent 8 or 9 hrs (check notebooks) at island then flew back to Kal.

I flew back to Perth at 1940 hrs (with Grant?).

This was the earliest stage at which a nesting colony had been visited by anyone (not true for early scrapes).

### Planning

Discussion with Clive and Jeremy. Opportunity for the first time too follow breeding event from go to whoa.

Information on how soon after lake fills does nesting start, clutch size and laying rate, incubation period, how long for chicks to fledge, diet, salinity, role sharing, nesting behaviour, hatching success, fledging success, predators, dispersal. Also band and leg flag for first time - dispersal, movements, survival. I had particular interest in seeing what threats might be, any conservation needs.

ABCTV would join us. We would make logically possible (Argo, boats, radios, camp, etc) and ABC would pay for air surveys including first and helicopter flight.

Did literature searches with Romeny Lynch's help re colonial nesting studies, DNA, Banded Stilt.

Planned to return on ground on .. (me booked to fly to Kal on evening of 22 March and do air survey 23/3) but delayed 1 week (?) due to ill camera man (bitten in Qld, hospitalised) and need to find replacement.

**Sun 26 March - Fri 7 April. Me, Grant (most of time), ABC TV, on Lake Ballard, at Camp Island**

Grant and I drove to Kalgoorlie with trailer, 2 punts (10', 12'), outboards, Argo, Argo trailer, etc (SLIDE) on Sun 26 March, meeting ABCTV Nat Hist crew (Mark Lamble and Campbell ..) at Kal airport around 7.15 pm).

Next day, Grant and Mark (?) did air survey of Ballard and Barlee. Found fewer birds and no nesting on Barlee, but now 3-4 (how many seen on flight, only 3 and not including colony 3.5 km west of Camp Island?) nesting colonies on Ballard.

After lunch, Grant, I (our vehicle) and ABC team (with hired Toyota personnel carrier) drove to Jeedamya Station (leaseholder/manager is John Finlayson) and then to Crossover Lake. Ferried some gear across Crossover Lake by punt, then camped on N side for the night. Next morning (29/3), ferried rest of gear across lake, then to shore of Ballard (by Argo + Argo trailer) then ferried gear by punts (1 8hp outboard, 1 electric) out to Camp Island. Established camp there (water, fuel, generator, tents, tarps, fridge, 25 watt portable HF radio with sellcall, hand radios. Water .. deep. Camped there for .. days.

Is the following air survey data or ground data?

Now 1st colony grown to 20 000 nests (10 per sq metre).

Second colony of 15 000 found 3.5 km west.

Also two other, smaller colonies (seen by Mark and Grant further west during air survey) on Ballard.

Observed ... numbers in and out of colony, colony size, new quadrats to determine laying rate - photographed these daily. Photographed quadrats established on previous visit daily - most interested in when hatching would occur (incubation period) (from incomplete catches of 15/3 plus knowledge of final clutch size and laying rate and date hatched).. Stopped photographing these when first chicks appeared because of concern about mortality (Mark Lamble had observed aggressive behaviour of adults to chicks on nest. Established 4? new quadrats in area where laying still occurring (nests contained 1 preferably or two eggs) using 20mm PVC pipe and elbows, and phot'd each day to determine laying rate.

Established automatic water level recorder, took water samples for salinity and nutrient (P & N?) analysis, sweep samples (50um or 110um nets?) near camp island for invertebrates. Water and air temps taken. ult feeding areas to collect adults and sweeps for diet analysis.

Hatching began on 3 April (peeping on 2/4?), .. approx .. days after....

Mark and Campbell .. boated off to west and found a second colony of .. pairs, .. km distant. Filmed frenetic behaviour. Reported new nests being formed and eggs laid, so next day I went there and established ten .. quadrats to determine laying rate and subsequently size of colony hatching success and hopefully incubation period

Predators observed were ..

Banding, colour marking and flagging approved by ANCA on 23/3).

Had bands (initially 490 (issued 23/3), size 8, incoloy) on this trip? by Clive?.

I tried catching adults on nest to individually colour mark (20 bands of each colour). Too disturbing. Then tried individual recognition by plumage. Too time consuming.

I collected 30? eggs of .. clutches (SLIDES or prints?) for DNA testing to see if all layed by same female. Show also SLIDES of clutches in nest?

Recorded waterfowl breeding at Crossover Lake for comparison.

#### Ron Johnstone, Phil Stone, Nick Kolichis's air survey on Fri 7 April (and 1 day ground visit on Sat 8th).

They flew (air survey) Barlee (central arm & northern portion), Goongarrie, Marmion, Ballard and Raeside (central) on 7 April (flew over me at 1st colony) and found:

- Marmion: 500-1000 stilt (no colony seen),
- Ballard: 1st colony 3-5000 pairs, 2nd colony 2-3000 pairs, at 29 23'S 120 51'E colony of 500-1000 pairs, western end possibly 500-1000 pair colony
- Barlee: 1000 pair colony (my Guitar I.)

On 8/4 they paddled kayaks out to both colonies (met our team). Phil Stone took "viewCAM". Took photos. Rain, cold squalls. On 2nd colony they did/saw:

- collected 10-12 incubating adults ranging from 0-100% chest band.
- collected 4 chicks
- took stomach samples
- collected small series of eggs
- Saw creches of 50-100 birds
- hoard of crows came off the island

- Wedge-t Eagle

Ron J. also said "John Darnell, Port Hedland 50-60 000 birds, 80% inactive"

Grant returned to Perth on .. for a few days (left vehicle in Kal?) to do Peel-Harvey on 5/4 and for private reasons, but did his back in (so Alan Clarke and Raelene did P-H on 6/4 instead). I left Ballard on Fri 7 April, Cam gave me a lift in ABC vehicle back to Kal for the night. Grant returned (flew) to Kal on Fri 7 April and had late dinner (valium) with me and Cam in Kal. Next morning I flew to Perth and Grant and Cam returned to Ballard, meeting Clive at Jeedamya (he had driven down from Broome) and taking him out too.

I took stilt eggs to John Weatherall at Murdoch Uni on Sat 8 for DNA analysis (what requested?)

Sat 8 April Clive joins, Grant rejoins, ABC TV team on Lake Ballard at Camp Island (I left previous day). Grant and ABC leave .. April, Clive leaves 15 April

Grant had returned to Perth on .. for a few days. He returned (flew) to Kal on Fri 7 April and met (late dinner) me and Cam in Kal. Next morning Grant and Cam returned to Ballard (I flew to Perth), meeting Clive at Jeedamya and taking him out too.

Clive and Grant did the following.

- collected with Grant 3 males and 1 female with chicks

Much rain. Clive's vehicle bogged at Crossover Lake.

Grant and ABC left on .. Gear left in ABC tent and under green tarp on Camp I.

Clive stayed on his own for three days until Sat 15/4, when he left.

Clive did the following.

1st colony

- photo'd the 15 quadrats (on 15/4?)
- counted addled eggs, dead chick, active nests
- guessed 20 000 nests

2nd colony

- measured approx as  $80 \times (20-5 = av15) = 1200 \text{ sq m} = 12-15000 \text{ nests}$

General

- 9-10 AM (12/4), incubation changeovers observed. .. PM (9/4) birds left nest, drank etc, returned to unoccupied (except eggs) nests to resume incubation. Unclear how frequently changeover occurs and in what proportion of nests.
- 1 parent with chicks when leave island
- rain added 13cm to Ballard. Water depth 51cm at 4pm on 14/4, four days after rain (at stake on N side of Camp I.)
- didn't band in colony.
- caught broods going to water for measurement purposes. Footprints trap chicks, fill them in.
- by boat & plankton net, Clive (alone) banded, flagged, weighed, measured 10 chicks (4 families) in 2hrs, don't catch all at once.
- expects high survival
- on some mornings Clive saw up to 2000 chicks leaving 1st breeding island in just a couple of hours.
- recorded brood sizes
- families were closely associated on water, but no true creching at this stage at least.
- lack of predation. Compare with Lake Torrens in 1989 where Silver Gulls totally destroyed last part of colony and took many eggs and some chicks throughout the breeding event. No gulls yet (I saw 1 later, not at colony).
- Little Crows mainly took dead chicks, often failed to take live chicks, only succeeded twice.
- Wt Eagle snatched chick from group of adults and chicks crossing island.
- 70mm of rain fell on 10 April, topping up the lake almost back to its maximum level..
- parents don't do distraction displays, unlike other waders.

### Incubation period:

- hatching commenced 3 April, 22 days after first air survey of 12 March, therefore incubation at least 23 days (counting 12/3 and 3/4). Note that I said hatching started 3/4, but I actually heard cheeping in 2/4 (check), which gives incubation period of **at least 22 days**.
- 2nd method of calculation [from general area where we marked (on 15/3) eggs of incomplete (1-2 egg) clutches, and Mark Lamble's advice that most here hatched 6, 7, 8th April, i.e. 23 days after 15/3, assuming they became 3-4 egg clutches] gives 21-23 days (counting 12/3 and 7/4) (23-2+1= incubation period of **22 +- 1 day**)
- 3rd method [Clive's visit on 9/4 to area of eggs marked on 15/3 and observation of a nest with 4 eggs, one of which was marked "1" (i.e. only one egg in this nest on 15/3), with 3 of these chipping on 9/4] (25-3+1=23 days) (includes day of hatching). Also 2 nests with marked eggs, some chipping and 1 or 2 chicks in nest. One is consistent with 23 day max incubation period, the other calculates to 23 day period.
- Most other eggs in marked eggs area visited on 9/4 had hatched (some addled) therefore the above three calculations probably at upper end of range of incubation period, **therefore average incubation period probably 21-23 days**.
- Note that all three methods assume incubation commences after laying of last egg of clutch. It probably commences after 2nd last egg so add 1 day to each of above, gives incubation period of **22-24 days**.

### Hatching success

Clive photo'd and counted eggs etc in the 15 quadrats on 14 April at completion of nesting.

### Weights

**Egg weights:** within week of hatching (2 chipping): 28-45gm (average c 37.5gm). Note that Clive wrote in Wingspan that "clutch of eggs weighs almost as much as female itself". **CHECK CLUTCH SIZES AND WEIGHTS.**

**Chicks** caught as leaving colony (before reaching water) on 12 April: 22-31gm (average 27.6gm, n=11)

**Chicks** banded & flagged 1km west of colony: 23-31gm (average 27.4gm; n=10)

**Chicks** (1-2 days after leaving nest) collected 1-2km W of colony on 11/4: 23-28.5gm (average 25.8gm; n=14; c1/8 of adults).

**Adults** collected with 1-2 day old broods: 4 male 203, 209, 210, 241gm; 1 fem 197gm. (average 212gm)  
All had active large double brood patches.

| Brood sizes | as leaving the colony |      |      | on water 1-3km from colony (1-2 days after leaving) |       |
|-------------|-----------------------|------|------|---|-------|
|             | 9/4                   | 12/4 | 14/4 | 11/4  |       |
| Average     | 2.9                   | 2.7  | 2.6  | 2.4   |       |
| Mode        | 3                     | 3    | 3    | 2   |       |
| broods (n)  | 60                    | 131  | 153  | 81  | ->425 |

Crossover lake records.

Grant went to PNG from Sun 23 April to .. so unavailable for next Ballard trip.

### 26 April - 4 May ?, Alan Clarke, Rob Thomas (1 night) and me, joined by Andy Chapman, Lake Ballard, at Camp Island.

Alan and I drove up from Perth in 4Runner with punt and outboard (SLIDE) on Wed 26 April. Now have 2 petrol outboards(.. and 8hp) plus electric.

I did air survey of Barlee and Ballard on Th 27 April AM.

- Barlee: Found breeding island (empty), I creche of 50 large chicks + 10 adults. W-t Eagle swooping. Also c3000 adults".
- Ballard: Found no stilt on 1st island, but still stilt sitting on 2nd. No other breeding sites found. Many creches (to 50) to west and north of 2nd island. Chicks in 1000s, not 10 000s (underestimate?).

Mon 01 May 1895  
J 22/12/13 6.

27 April PM, Alan, Rob and I drove (2 vehicles to Jeedamya and then out to Camp Island in the dark on compass bearing).

Next day (Fri 28/4), 1st breeding island already deserted (SLIDES). Counted chicks coming off 2nd island. Rain.

Rob left for Kal that afternoon (Fri), wet track out. Pissed down overnight?

Andy Chapman joined us for 3 days (picked him up at Crossover Lake) on PM of ... (Sun or Mon).

Andy, Alan and I took water samples, measurement, Collected parents and chicks for diet, sexing. Caught (SLIDES), banded .. and leg flagged (SLIDES and EXHIBIT) on tibia (above "knee"). 500 flags made by VWSG (Mike Barter, need to thank) Why yellow?

Flagged 170 chicks .. by boat (SLIDES), ranging .. km west of 2nd nesting island. We shot, collected, swept.

Brine shrimp abundant.

Was Mark Barter, not Mike. (died 21/11/2011)

#### Water depth, quality:

28/4: water 0.54m deep at stake next to Camp island (0.89m from top of stake down to water surface), pH 7.9, Temp 19.0 (8.30hrs. am?). (V1, folio 106)

2/5: depths at sites of collection of adults and chicks, 0.47, 0.48, 0.49, 0.33, 0.31m. (V1, folios 108-9).

4/5: 0.44m deep at stake (0.97 down from top of stake), pH 7.8, temp 12.6 (time?)

03/02/14

Measured 1st nesting area on 4 May (when 2nd?) and used triangular tessellation method to compare later.

Alan and I left on 4 May, driving 4Runner back to Perth (Northam).

Crossover Lake records (see Vol 1, folios 107, 109).

8hp outboard taken to Kal for servicing, electric outboard left at the Lake.

#### 9 - 17 May, ABC TV team at Ballard on own, Camp Island then drove to West end of Ballard air survey?

Detailed report at V1 folios 129-33.

Did air survey with Andy Chapman.

All birds had left 2nd island. All creching at W end of Lake.

Mark and Cam left Kal Tues night (9/5) and drove to Crossover Lake. 1-3mm rain o'night.

Wed 10/5 to Camp I. then Mark boated c 15 km W till too shallow. V. strong NW wind flattened tent on Camp I. Rained o'night <5mm.

11/5 looked for tracks to W on mainland.

12/5 filmed Camp I. and 1st deserted colony. 2-3000 adult stilt landed in water near 1st island, then moved up close to it. Attempted copulation on water. Very vocal. Very flighty. They filmed it. The birds left when Wt eagle landed on breeding island. "over 2.5-3hrs (meaning?).

13-14/5 filmed Camp I. and 2nd deserted colony.

15/5 moved from Camp I. to New Camp.

16/5 filmed chicks on lake.

17/5 filmed chicks, returned to Crossover lake camp.

18/5 returned to Kalgoorlie.

They then drove to west end of lake along N side trcks/fencelines. Camped there. (2 days?). Big sand dune, visibility for c2km. Takes 2hrs towing trailer to drive from Crossover Lake to new camp when have done it once. 60km/hr in good stretch. 3 fences to cross, then camp 500m from lake (good map at V1, folio 129).

Many adults flying back and forth past Camp I while camped there.

Found "hundreds and perhaps thousands of chicks" 30? (not 70) km W of Camp Island. Compare this with statement in Wingspan that Mark reported tens of thousands of well-grown chicks on the western end of Ballard. CHECK.

Fledging on 17 May Mark and Cam saw chicks flying 30-50 cm above water for 10-15 meters. These were the oldest chicks seen. Saw chicks flying only 3 times near New Camp. So if these were the first chicks to hatch, i.e. hatched at 1st island on 3rd April, they fledged at 44 days (6 weeks 2days).

No strict creches, loose groups of 3-20, all different ages, adults interspersed and came and went. Adults acted as sentry/alarm birds and lead chicks away from threat. Didn't appear attached to particular chicks. Birds very very flighty to people (1 km or more away). Used Argo as film platform. Half a km from new camp he (Mark) had birds walking past very close.  
 One person can round them (chicks) up on hard ground.  
 Conditions changed day to day (wind).  
 The birds marched E during day and W at night. Chicks are wading, not swimming.  
 Very few "artemia" in water near new camp, but v. thick around breeding island (estimated 4x as many as previous visit).  
 Wingspan article says chicks feeding in very shallow water on minute items too small to be brine shrimp, and adults periodically left chicks to fly to deeper water, presumably to feed on brine shrimps.  
 Bogged the Argo many times in soft spots in mud. It did not fare well..  
 No predators except uid raptor.  
 Mark caught one banded chick on 10/5 at 2pm, 3km NW of Camp I. (among 7 chicks and 3 adults). Didn't get number.

Filmed chicks from Argo. Birds came to accept it and was a great filming platform (said it would also be good catching platform).. Cat came down sand dune and birds ran away.

#### 7-14? June 1995. Grant, Alan and Andy Chapman at Ballard, then Marmion Lake

Air survey by Andy Chapman and Ian Kealley in Cessna 210 on Tuesday 6 June of Ballard and Marmion with objectives of .. (V1, folio 123). Not paid for by ABC (agreed). Strong NW wind. (full report at V1 folios 139-40). (Also see V2, folio yy for another full report COMPARE!!)

- Ballard 22 000 stilt. No flightless chicks left. Not one! Therefore all **fledged** Check against date at which last chicks came off 2nd island. No new nesting activity. GyTl in thousands, Shel in hundreds.
- Marmion: c1500 adults and c600 chicks (about same age as Ballard at beginning of May, i.e. some not long out of nest) in lee of one island. Also another c700 adults Water too shallow for outboard. Did not find nest site but thought could find on ground. GyTl & Shel.. Note that Wingspan article says colony on Marmion was "5000 pairs, with at least 2000 chicks seen in June" and "nesting success probably lower than Ballard due to regular presence of Wt Eagle and a Peregrine Falcon..

*at Camp Island*  
 My Diary says "advise Grant of Marmion location" (ticked).

Grant and Alan then drove to Kalgoorlie (see full report of this trip at V1 folios 150-154).

Initially they went to Ballard?

*Water depth and quality: depth 775 mm (??), pH 8.7. Samples taken, sweeps done. Nesting area of 1st island precisely measured. Depth datalogger downloaded, logger left in place.*

*All gear withdrawn from Camp Island and Crossover lake campsite.*

Crossover Lake records:

Grant, Alan and Andy moved from Ballard (Camp Island) to Lake Marmion on Sat 10 June access via V. Tonkin's station. Have "magic" campsite.

#### Marmion

Installed staff gauge. Measured water quality., samples, pH 7.4.  
 Found 10-15 000 adults and 1000 chicks.

On 11/6, banded 200 chicks (all that were issued) on left tibia. Flagged 195 chicks on right tibia. Worked from Argo, towing 3m punt. (Note that extra 20 were flagged but flags removed because thought on wrong leg).

Collected 1 family. Chicks weighed 32, 33, 34, 39, 42 gm. All had large yolk sacs. Adult was male, 221 gm.

Salinity 46 ppt on 11/6 (Andy Chapman), pH was 7.9..

Ostracods and Parartemia.

Depth mainly 10-20cm, too shallow for boat, used Argo.

Capture chicks by driving to creches, chase 20-30, catch, take back to boat, release, adults come back.

Oldest chicks have well developed flight and body feathers, will fly within week. Also chicks 2-4 days old..

Andy left at 0700hrs on 12/6 and flew air "survey" of Marmion (and..?) on Mon 12 June to find nesting site and direct Grant that way (also to Grant via radio in PM).

Banded and flagged chicks. Total flagged = 195+260+20=475.

Collected more families. Detailed measurements taken.

On 13/6 Grant and Alan visited Marmion nest site (SLIDES??).

Water depth up to 52 cm.

Detailed observations made at colony.

Measurements. Size of colony. Peregrine Falcon and Wt Eagle. Photos & veg samples taken.

Totals of chicks banded and flagged.

Argo and trailer left at Marmion.

Grant and Alan returned to Perth on ..

#### Air survey by Andy Chapman on Fri 14 July.

(See V2, folio yy for full report)

Ballard: 4 passes over lake. 6-7000 Stilt all flying, no further nesting

Marmion: 20-25 000, include. 10% chicks not flying but "coloured up". He reported gear (trailer + Argo) was OK at Marmion.

Other bird observations made (see V2 folio xx)

Flight was 3hrs, Piper Warrior, \$630 in toto.

#### Air survey of Ballard and Marmion Andy Chapman and .. on Tues 22 August 1995

Piper Warrior. (See V2, folio yy for full report)

Ballard: 4 traverses of lake. Western end dry. c11 500 stilt "all adults wading and flying" ..

Marmion: 7500 stilt, c20 incapable of flight.

#### 10 August 1995 Andy and .. collected Argo and trailer from Marmion

Depth 5cm at sample point near camp. Salinity 63 ppt. Of c200 stilt observed from shore only 5-6% had bands on chests.

.....Sep? , Grant diverted from SW lakes survey (9-17/9) to Ballard to collect water level recorder.

Drove up from Esperance.

Retrieved Water level recorder from Ballard. Observations?

Brought gear back from Marmion (observations?) and Kal?

#### Tag publicity and sightings

Publicity for tags - Wingspan? WA Bird Notes (see my Vol 1, folio 113), Direct approaches, Mike Barnford. "Tattler"? Clive will do SA and Vic.

Subsequent sightings, by, on, where, implications,

8.

Mike Bamford reported 10 000 Banded Stilt at Port Hedland prior to Cyclone Bobby and none one week later.

Andy reported that on 24 October 1995, 1 stilt in flock of 300 in 2cm water at Lake Arrow 24km of Kalgoorlie was leg flagged (yellow). He is going to S coast over Xmas - observations??

Letter of late Nov 1995 from Mike Bamford.

A question?

Terri Lloyd at Dumbleyung.

1 yellow flagged Stilt observed at Rotto on 21 Jan 1996.

Cargill Salt, Port Hedland, stilts began arriving 13 Feb 1996.

One yellow flagged stilt at Dampier Salt on 7 March 1996. Steve vL said BaSt have only begun arriving in past 2 weeks.

Grant saw 3 leg flagged and one banded Banded Stilt at Port Hedland Saltworks on 28 (check) Feb 1996.

### **ABC film**

half our program "Bobby and the Banded Stilt"

Film in final stages. 1st draft of narration. ... of film. Jeremy Hogarth to TVNZ.

Working on data with Clive as time permits for publication in Emu. Popular articles in Wingspan.  
No plans for further work at this stage, snowed under.

Andy Chapman

Found nesting on Marmion (why looked? for renesting?).

Finished

Travel claims, diaries (checked mine 15/5/96), vehicle logs,

Granr, Alan and Andy slides?

No renesting as at Lake Torrens (Wingspan)