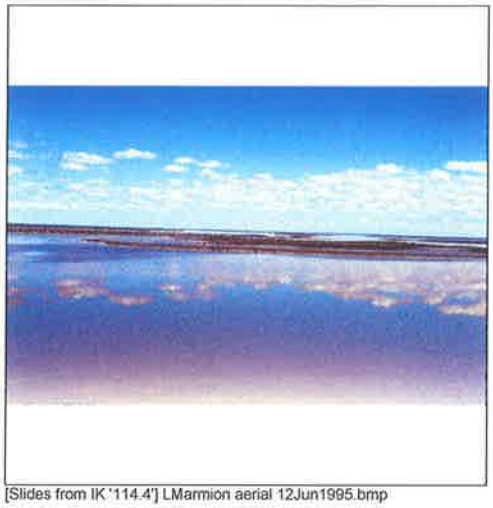
Aerial oblique photos (one page of 'thumbnail prints') of Lake Marmion BaSt flocks and BaSt nesting area that were among a batch of Lake Boonderoo photos sent by Ian Kealley to JL in 2013.

Most or all are probably photos taken by ACh when he flew over Lake Marmion on 12/06/1995 looking for the BaSt nesting site on this lake.

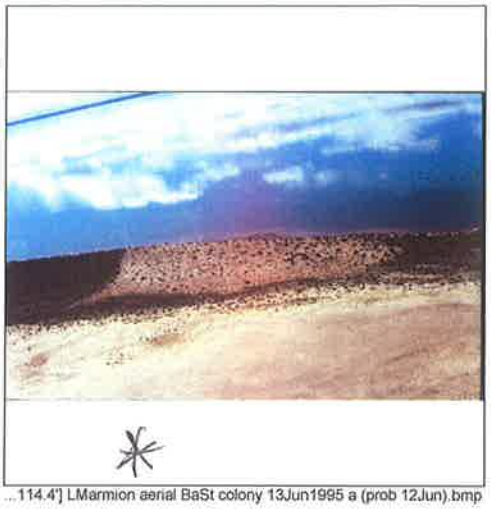
Some of the photos were labelled 13/06/1995 so need to double-check with ACh about the date (almost certainly should be 12/06/1995) and with ACl about the photo content.

JL scanned (digitised) these photos in 2013 and will return the originals to IK.

...es from IK '114.4'] (s04) LMarmion aerial BaSt flock 12Jun1995.bmp

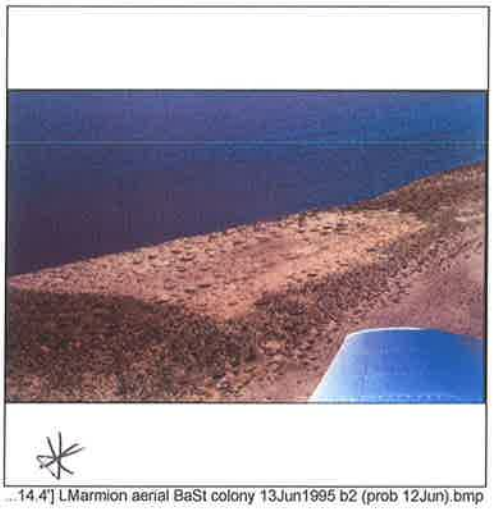


[Slides from IK '114.4'] LMarmion aerial 12Jun1995.bmp

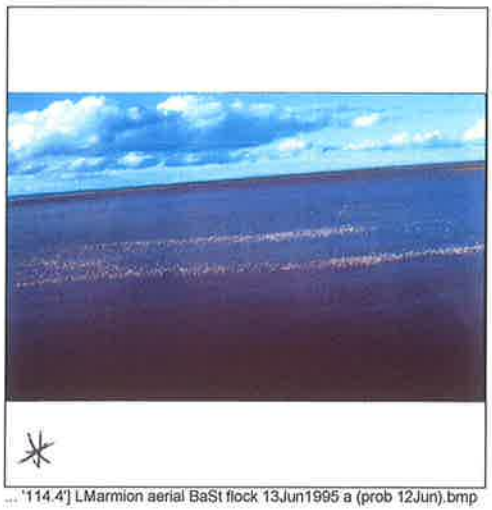


...114.4'] LMarmion aerial BaSt colony 13Jun1995 a (prob 12Jun).bmp

...14.4'] LMarmion aerial BaSt colony 13Jun1995 b1 (prob 12Jun).bmp



...14.4'] LMarmion aerial BaSt colony 13Jun1995 b2 (prob 12Jun).bmp



... '114.4'] LMarmion aerial BaSt flock 13Jun1995 a (prob 12Jun).bmp

... '114.4'] LMarmion aerial BaSt flock 13Jun1995 b (prob 12Jun).bmp

* These photos, which were labelled 13/06/1995 were probably taken on 12/06/1995 by Andrew Chapman while searching for the BaSt colony on Lake Marmion

(Unless he or someone else from CALM Goldfields Region made an additional flight, on the 13th, which seems unlikely)

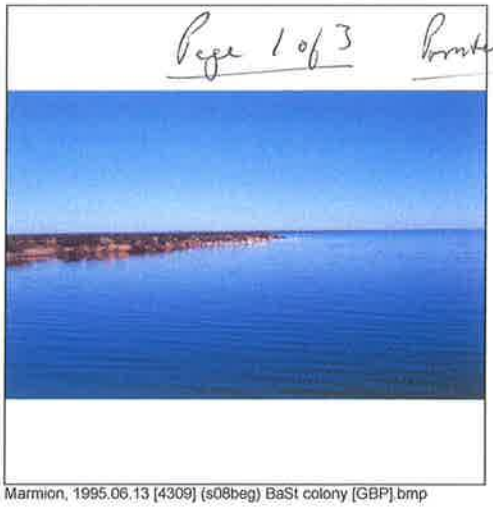
16/3/2014

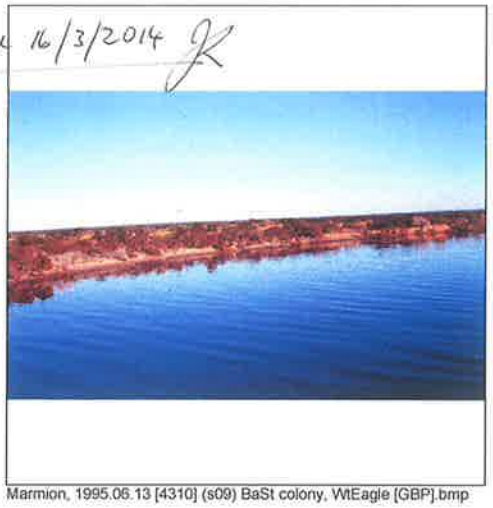
Photos (3 pages of 'thumbnail prints') by GBP of what is probably (first photo) Andy Chapman flying overhead (Lake Marmion) on 12/06/1995 and then (subsequent photos) GBP & ACl's trip the next day (13/06/1995) to the BaSt breeding site on Lake Marmion.

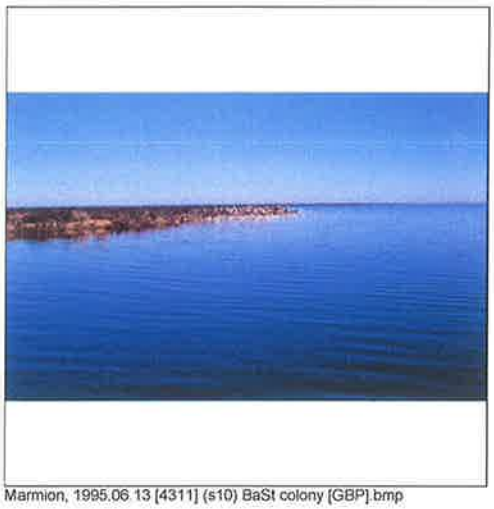
Note especially that on 12/02/2014 JL changed (corrected – to 13/06/1995) the dates in the file names of the scanned copies (JL's photo numbers 4309-4336) of GBP's photos (slides) of the day GBP & ACl located and visited the BaSt nesting island on Lake Marmion. GBP had started labelling these slide mounts as 11/06/1995, then changed some and labelled the rest as 12/06/1995. They were actually taken on 13/06/1995 (based on his field notes and subsequent report of this trip).

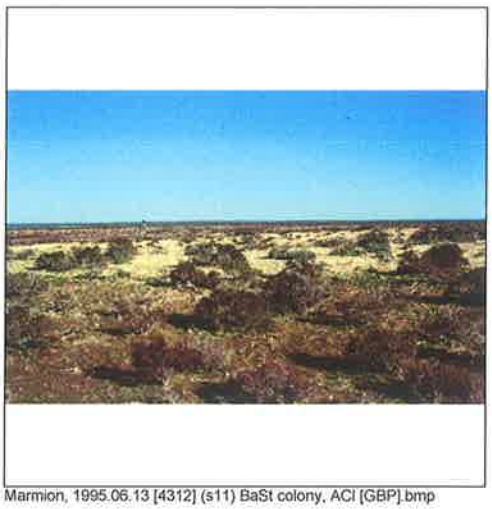
See JL's work PC (and backups) for these photos in digital format (scanned from 35mm colour transparencies, i.e. slide film).

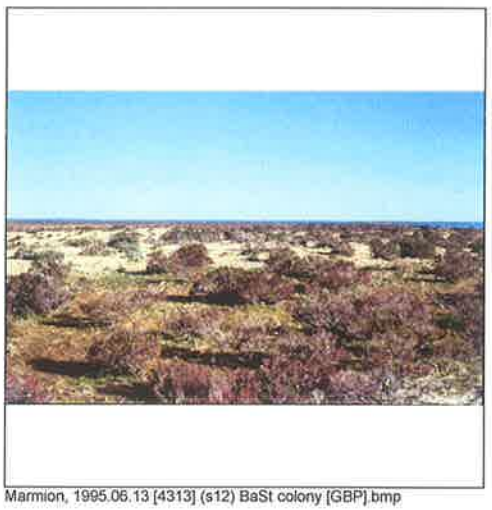

Marmion, 1995.06.12 [4373] (s37end) plane overhead [GBP].bmp

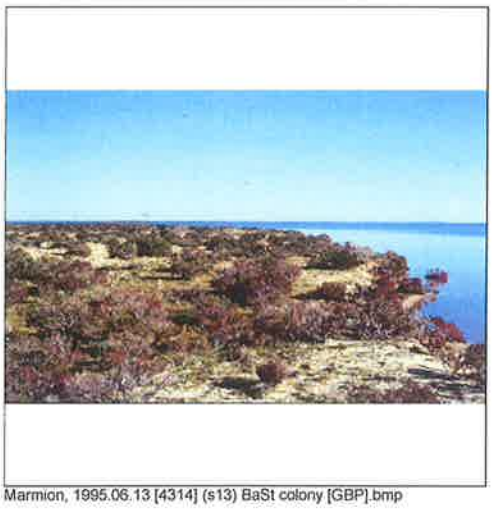

Marmion, 1995.06.13 [4309] (s08beg) BaSt colony [GBP].bmp

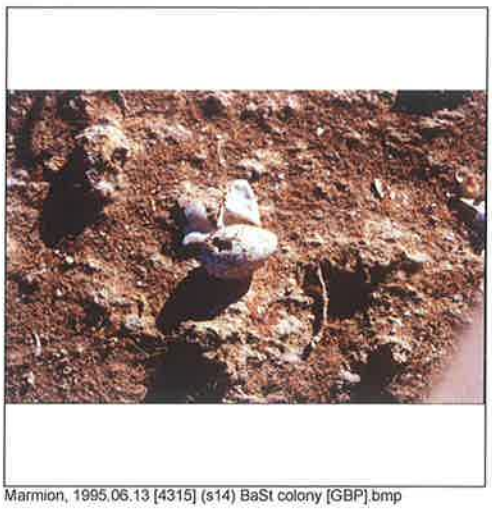

Marmion, 1995.06.13 [4310] (s09) BaSt colony, WtEagle [GBP].bmp

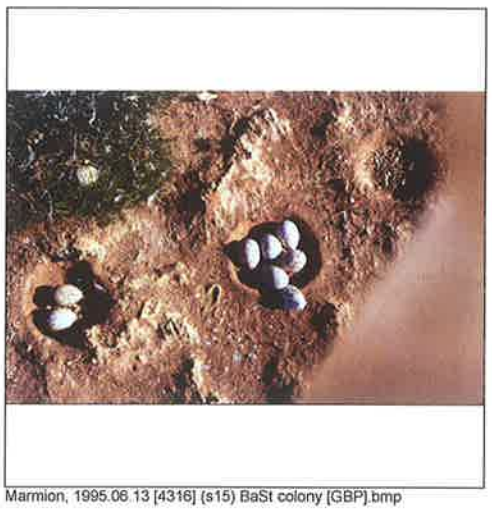

Marmion, 1995.06.13 [4311] (s10) BaSt colony [GBP].bmp

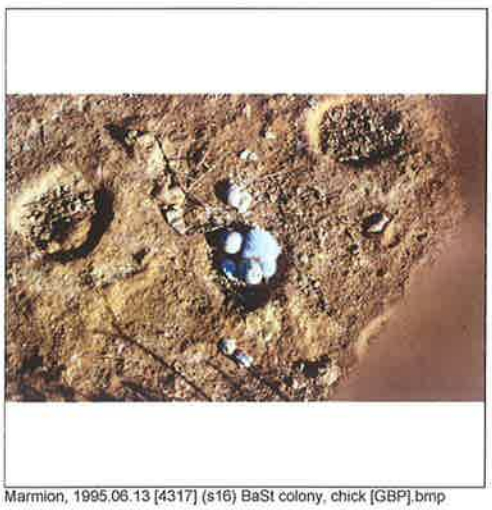

Marmion, 1995.06.13 [4312] (s11) BaSt colony, ACI [GBP].bmp

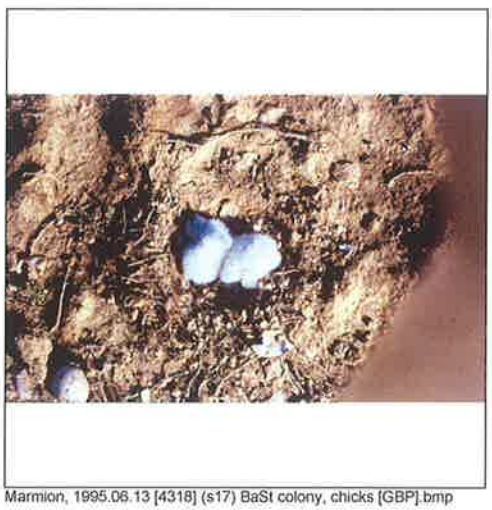

Marmion, 1995.06.13 [4313] (s12) BaSt colony [GBP].bmp

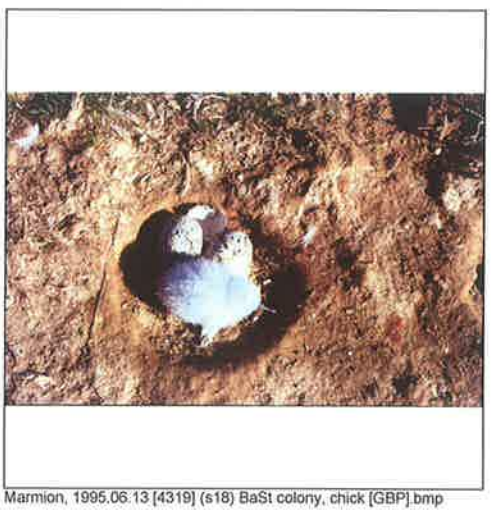

Marmion, 1995.06.13 [4314] (s13) BaSt colony [GBP].bmp

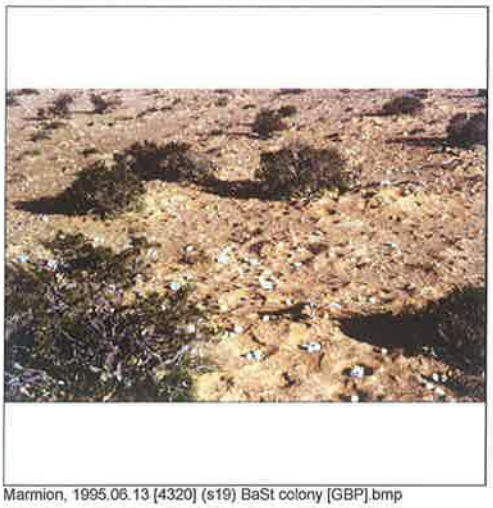

Marmion, 1995.06.13 [4315] (s14) BaSt colony [GBP].bmp

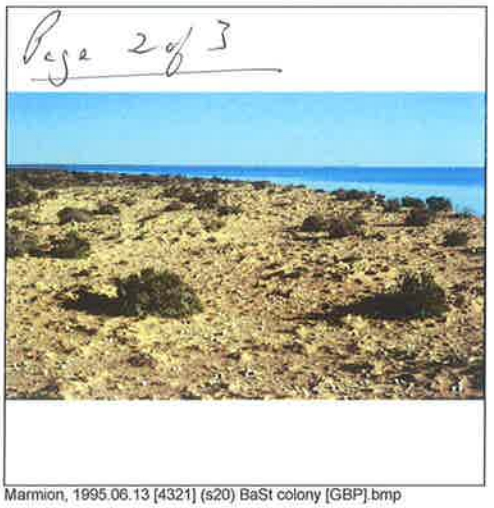

Marmion, 1995.06.13 [4316] (s15) BaSt colony [GBP].bmp

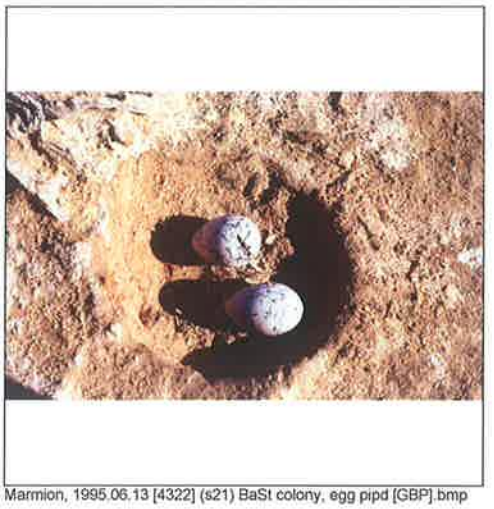

Marmion, 1995.06.13 [4317] (s16) BaSt colony, chick [GBP].bmp

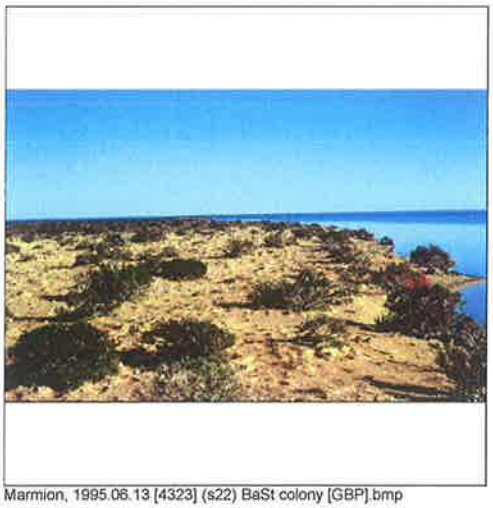

Marmion, 1995.06.13 [4318] (s17) BaSt colony, chicks [GBP].bmp


Marmion, 1995.06.13 [4319] (s18) BaSt colony, chick [GBP].bmp

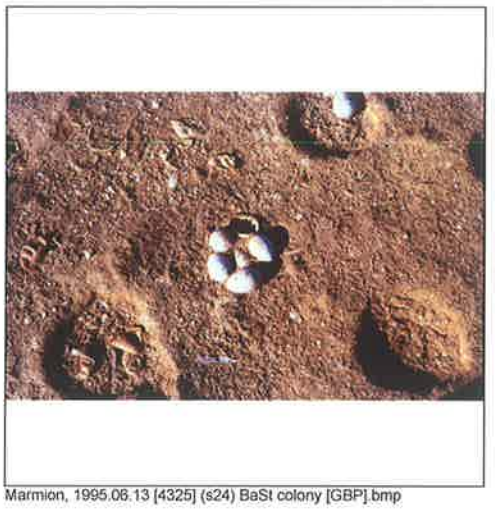

Marmion, 1995.06.13 [4320] (s19) BaSt colony [GBP].bmp


Marmion, 1995.06.13 [4321] (s20) BaSt colony [GBP].bmp

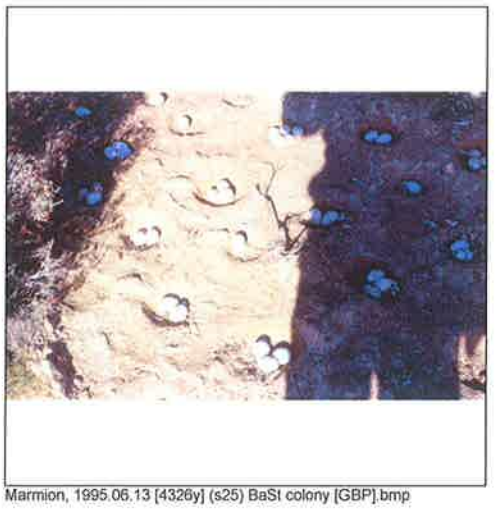

Marmion, 1995.06.13 [4322] (s21) BaSt colony, egg pipd [GBP].bmp

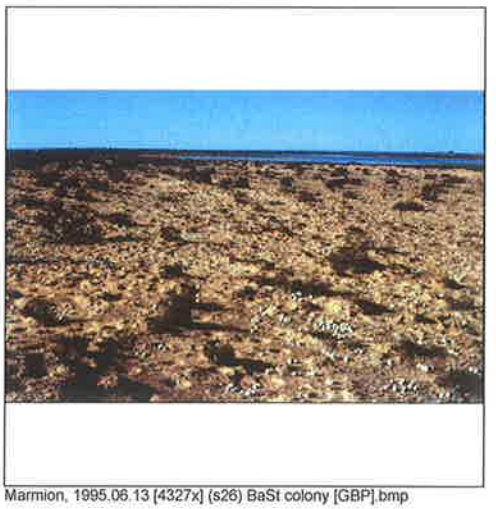

Marmion, 1995.06.13 [4323] (s22) BaSt colony [GBP].bmp

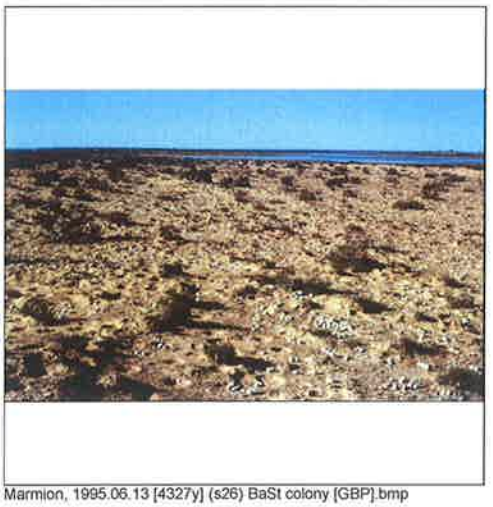

Marmion, 1995.06.13 [4324] (s23) BaSt colony [GBP].bmp


Marmion, 1995.06.13 [4325] (s24) BaSt colony [GBP].bmp

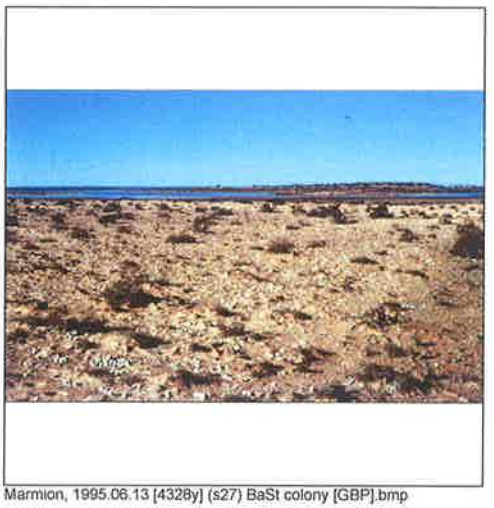

Marmion, 1995.06.13 [4326x] (s25) BaSt colony [GBP].bmp

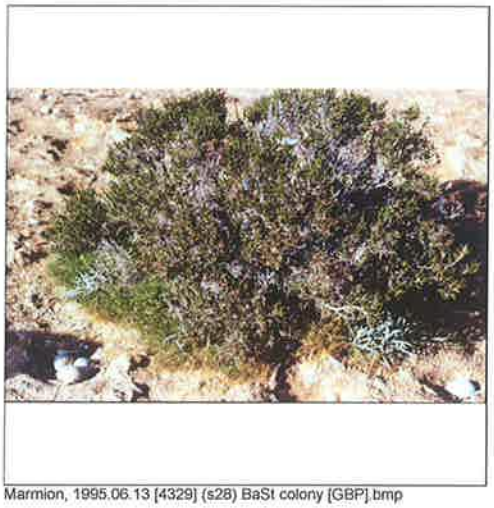

Marmion, 1995.06.13 [4326y] (s25) BaSt colony [GBP].bmp

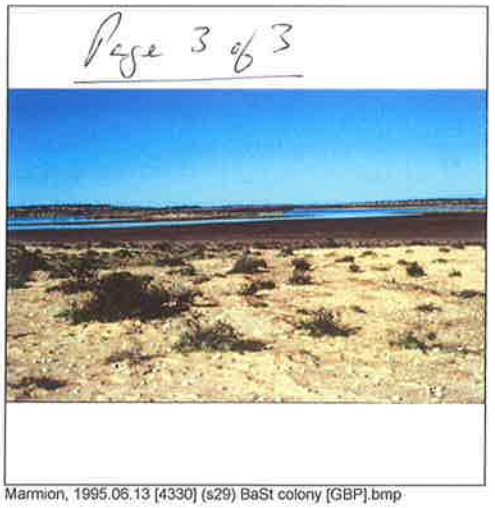

Marmion, 1995.06.13 [4327x] (s26) BaSt colony [GBP].bmp


Marmion, 1995.06.13 [4327y] (s26) BaSt colony [GBP].bmp

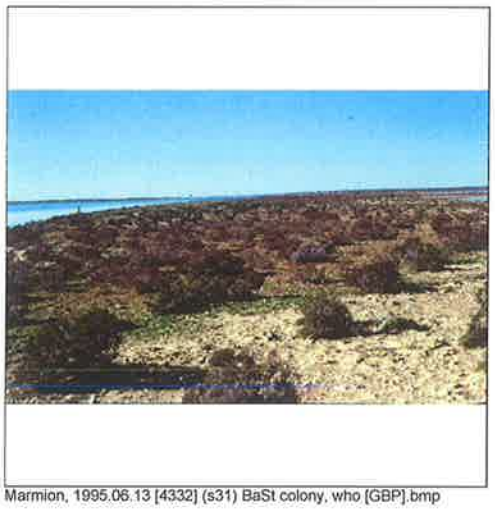

Marmion, 1995.06.13 [4328x] (s27) BaSt colony [GBP].bmp

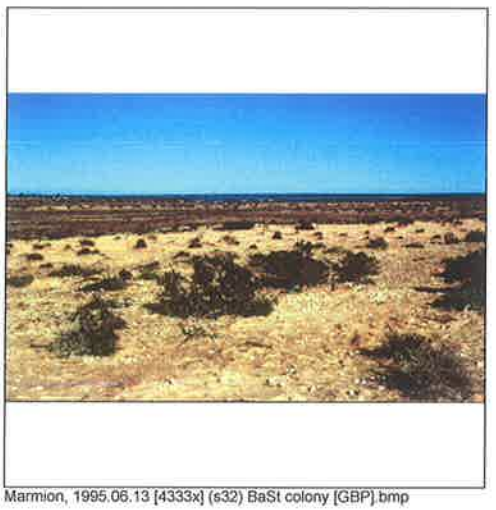

Marmion, 1995.06.13 [4328y] (s27) BaSt colony [GBP].bmp

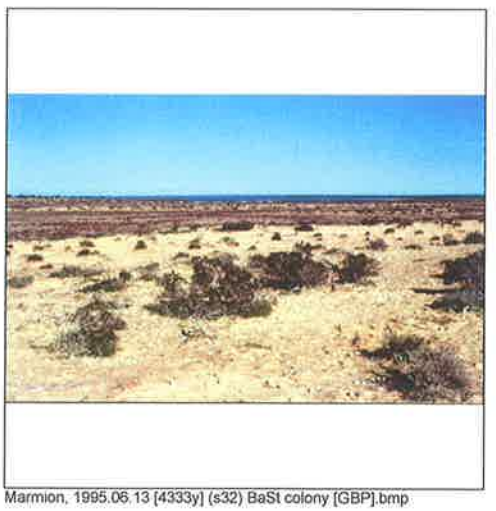

Marmion, 1995.06.13 [4329] (s28) BaSt colony [GBP].bmp


Marmion, 1995.06.13 [4330] (s29) BaSt colony [GBP].bmp


Marmion, 1995.06.13 [4331] (s30) BaSt colony [GBP].bmp


Marmion, 1995.06.13 [4332] (s31) BaSt colony, who [GBP].bmp

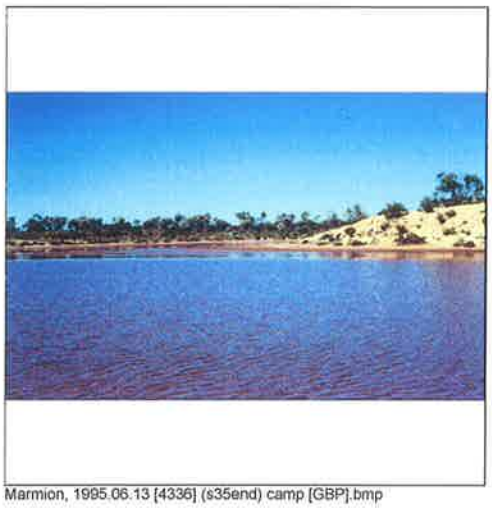

Marmion, 1995.06.13 [4333x] (s32) BaSt colony [GBP].bmp


Marmion, 1995.06.13 [4333y] (s32) BaSt colony [GBP].bmp


Marmion, 1995.06.13 [4334] (s33) BaSt colony [GBP].bmp


Marmion, 1995.06.13 [4335x] (s34) BaSt feeding [GBP].bmp


Marmion, 1995.06.13 [4335y] (s34) BaSt feeding [GBP].bmp

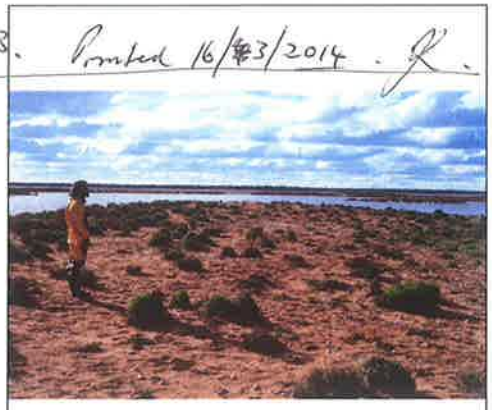

Marmion, 1995.06.13 [4336] (s35end) camp [GBP].bmp

Photos (3 pages of 'thumbnail prints') by GBP of 09/06/1995 visit by GBP & ACh (& ACl) to 1st colony (by this time deserted) on Lake Ballard. Inter alia they measured the nesting area and areas including (incidentally) some quadrat pegs and individually labelled nests. Check if these photos have been referred to in the Excel Tables (Excel file: 'Numbered quads, nests and eggs 1995 Ballard.xls') prepared by JL in Feb-Mar 2014 (see above).

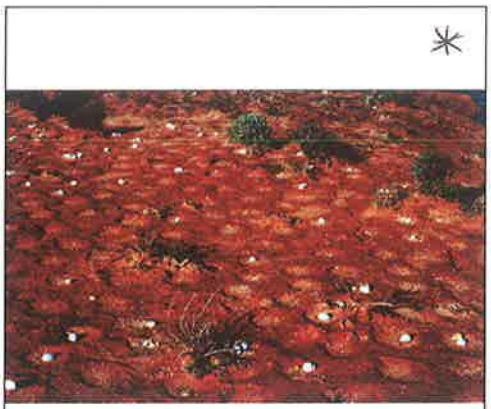
See JL's work PC (and backups) for these photos in digital format (scanned from 35mm colour transparencies, i.e. slide film).

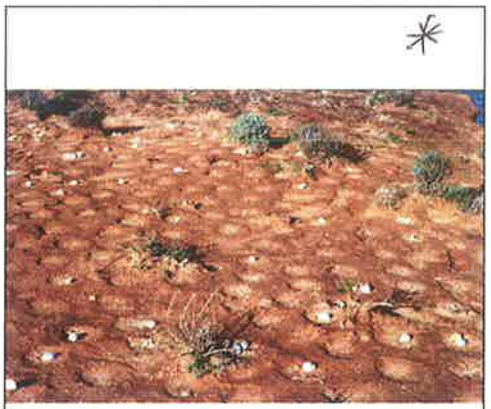
...lard, 1995.06.09 [4292] (s23) BaSt colony on 1st Isl, punt [GBP].bmp


...lard, 1995.06.09 [4293] (s24) BaSt colony on 1st Isl, punt [GBP].bmp

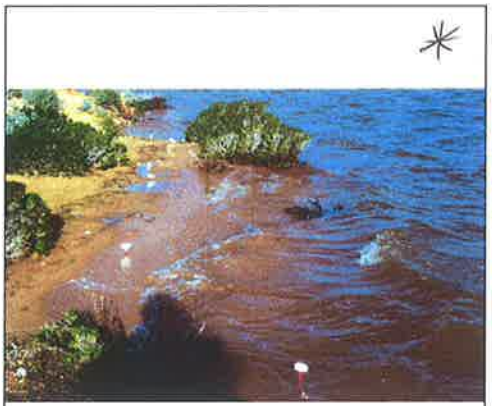

...95.06.09 [4294] (s25) BaSt colony on 1st Isl, AChapman [GBP].bmp


...lard, 1995.06.09 [4295] (s26) BaSt colony on 1st Isl, ACh [GBP].bmp


...d, 1995.06.09 [4296x] (s27) BaSt colony on 1st Isl, tag D [GBP].bmp

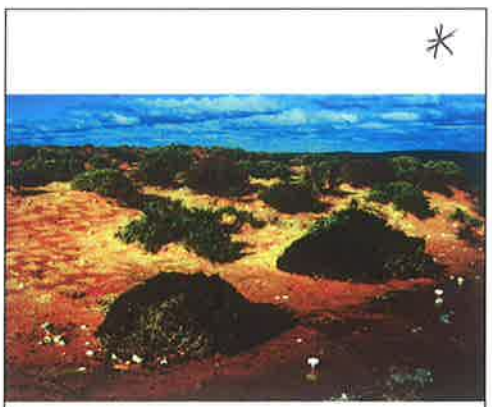

...d, 1995.06.09 [4296y] (s27) BaSt colony on 1st Isl, tag D [GBP].bmp


...9 [4297x] (s28) BaSt colony on 1st Isl, praps near MNOP [GBP].bmp

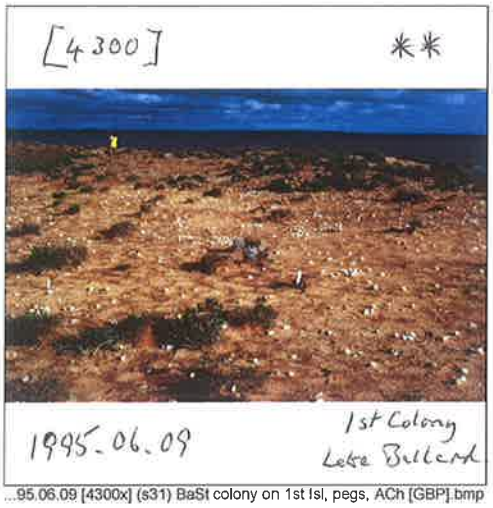

...9 [4297y] (s28) BaSt colony on 1st Isl, praps near MNOP [GBP].bmp


...9 [4298x] (s29) BaSt colony on 1st Isl, praps near MNOP [GBP].bmp


...9 [4298y] (s29) BaSt colony on 1st Isl, praps near MNOP [GBP].bmp

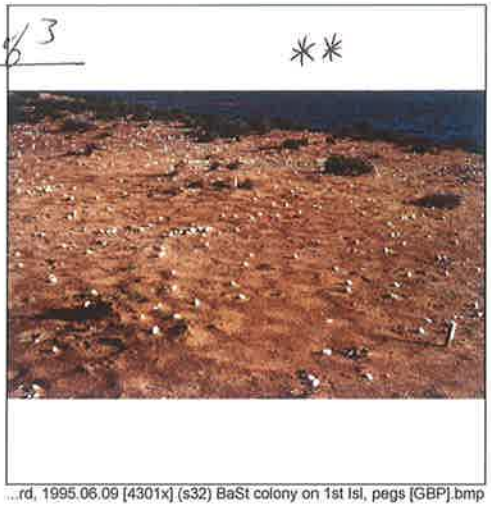

...9 [4299x] (s30) BaSt colony on 1st Isl, praps near MNOP [GBP].bmp

...9 [4299y] (s30) BaSt colony on 1st Isl, praps near MNOP [GBP].bmp

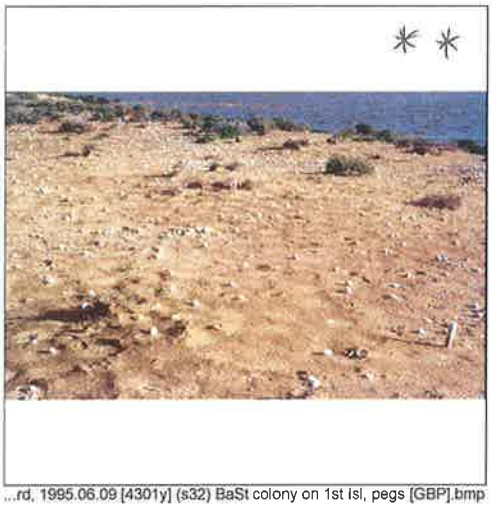


...95.06.09 [4300x] (s31) BaSt colony on 1st lsl, pegs, ACh [GBP].bmp

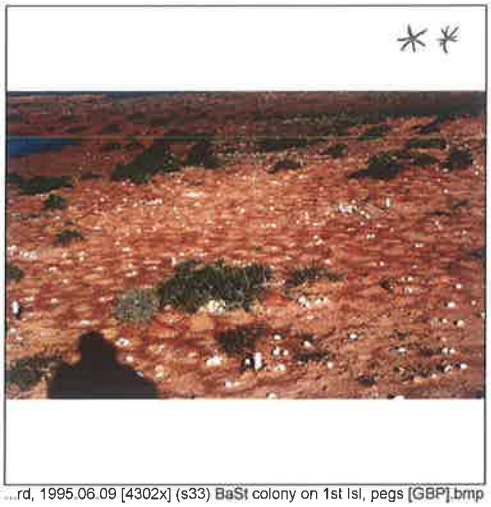
...95.06.09 [4300y] (s31) BaSt colony on 1st lsl, pegs, ACh [GBP].bmp



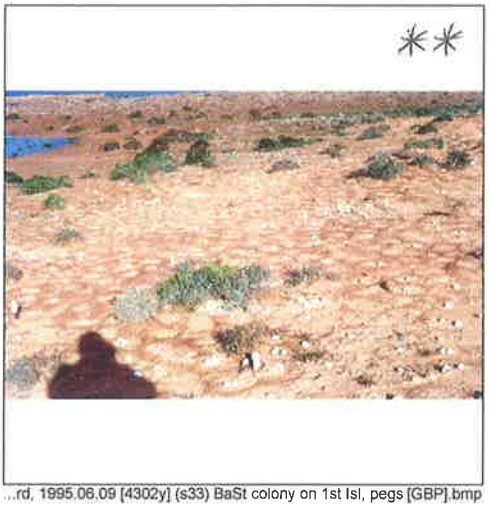
...rd, 1995.06.09 [4301x] (s32) BaSt colony on 1st lsl, pegs [GBP].bmp



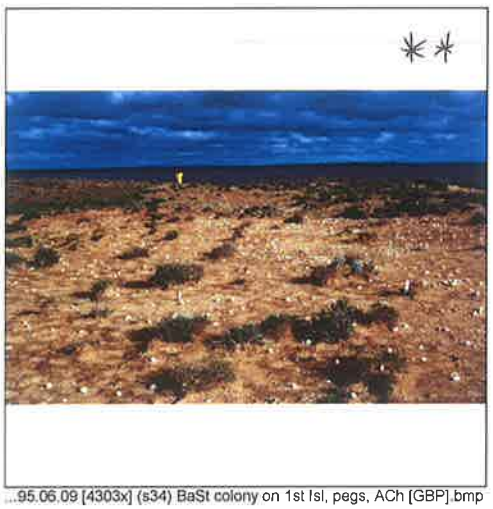
...rd, 1995.06.09 [4301y] (s32) BaSt colony on 1st lsl, pegs [GBP].bmp



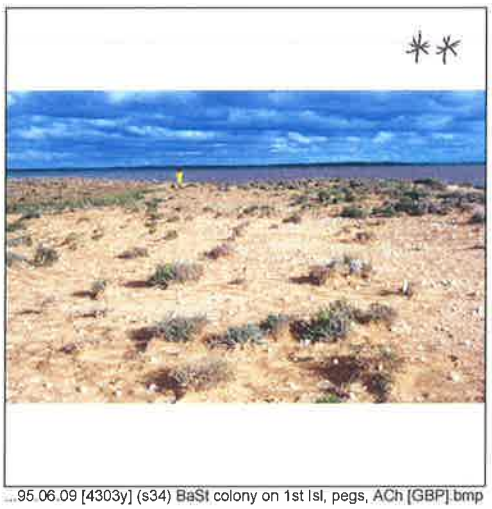
...rd, 1995.06.09 [4302x] (s33) BaSt colony on 1st lsl, pegs [GBP].bmp



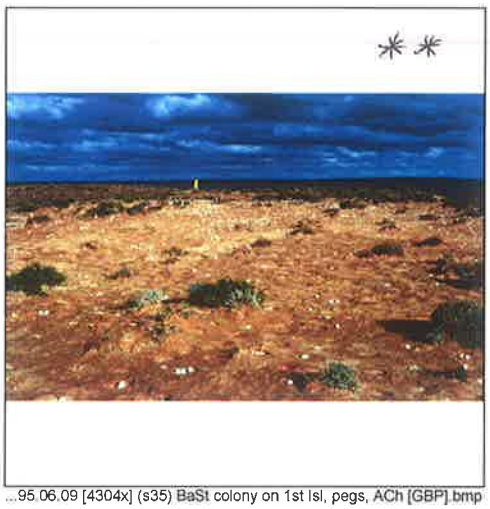
...rd, 1995.06.09 [4302y] (s33) BaSt colony on 1st lsl, pegs [GBP].bmp



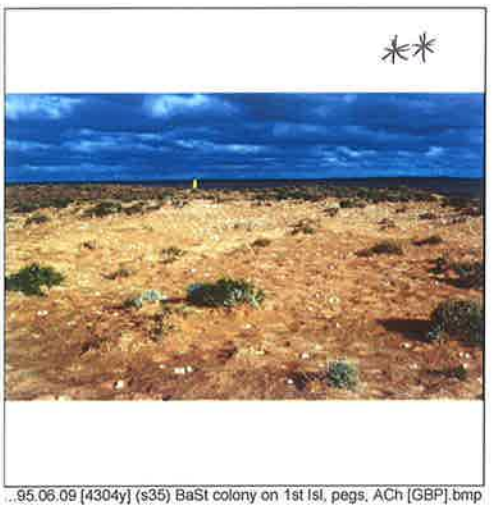
...95.06.09 [4303x] (s34) BaSt colony on 1st lsl, pegs, ACh [GBP].bmp



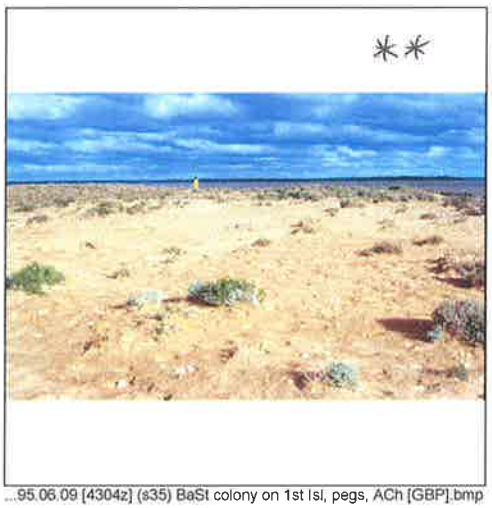
...95.06.09 [4303y] (s34) BaSt colony on 1st lsl, pegs, ACh [GBP].bmp



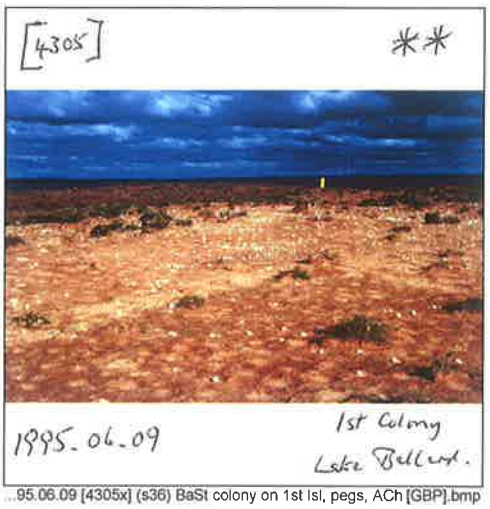
...95.06.09 [4304x] (s35) BaSt colony on 1st lsl, pegs, ACh [GBP].bmp



...95.06.09 [4304y] (s35) BaSt colony on 1st lsl, pegs, ACh [GBP].bmp

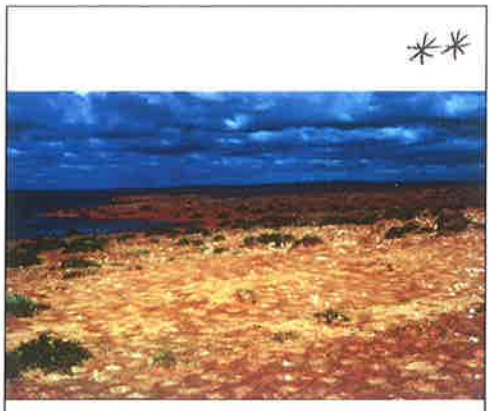


...95.06.09 [4304z] (s35) BaSt colony on 1st lsl, pegs, ACh [GBP].bmp



...95.06.09 [4305x] (s36) BaSt colony on 1st lsl, pegs, ACh [GBP].bmp

...95.06.09 [4305y] (s36) BaSt colony on 1st Isl, pegs, ACh [GBP].bmp



...rd, 1995.06.09 [4306x] (s37) BaSt colony on 1st Isl, pegs [GBP].bmp

...rd, 1995.06.09 [4306y] (s37) BaSt colony on 1st Isl, pegs [GBP].bmp

Ballard, 1995.06.09 [4307] (s38) BaSt colony on 1st Isl [GBP].bmp

Ballard, 1995.06.09 [4308] (s39) BaSt colony on 1st Isl [GBP].bmp

These three pages of photos [4292 - 4308] were taken by GBP when visiting the 1st breeding colony (Banded Stilt) on Lake Ballard on 1995.06.09.

The breeding area was "measured and mapped" on this day.

* Some of the photos have nest tags in them.

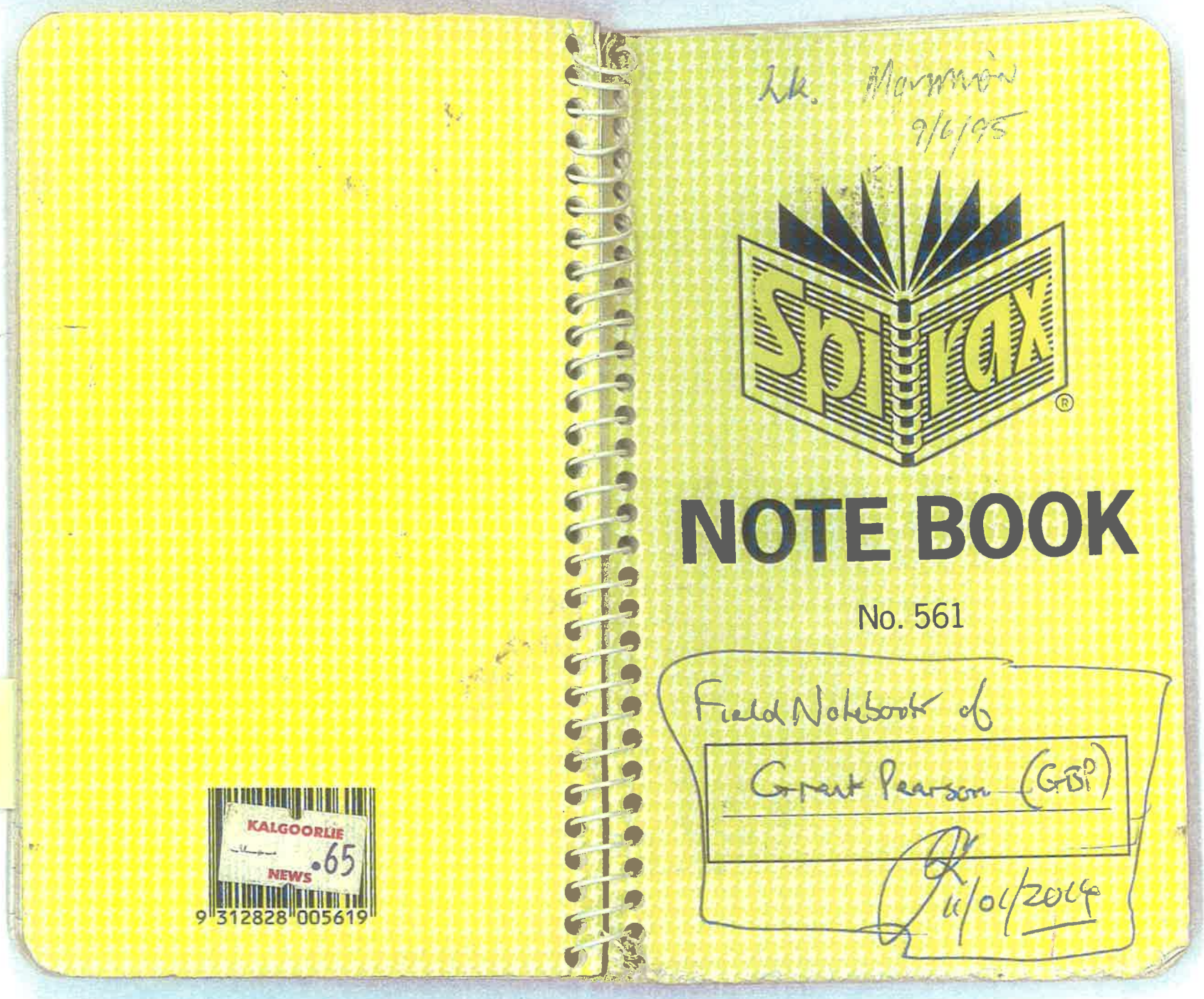
** Some of the photos have nesting quadrat pegs (wooden) in them.

16/03/2014.

Photocopies of the pages of GBP's field notebook that cover his (with ACl & ACh) 8-13 June 1995 trip to Lakes Ballard and Marmion, during which they, inter alia, visited and measured the main BaSt breeding colony on Lake Ballard and located, visited, made observations, took photos, measured, etc. a BaSt breeding site on Lake Marmion.

These field notes include some/many details that are not in GBP's subsequent report of 17/06/1995, and vice-versa.

ACh had left Lake Marmion the day before GBP & ACL visited this breeding colony, but ask him for a copy of his field notes of the days prior, including of his flight on 12/06/1995 when he found the Marmion breeding site for GBP.


lk. Marmion
9/6/95
SPIRAX
NOTE BOOK
No. 561
Field Notebook of
Grant Pearson (GBP)
11/04/2014
KALGOORLIE
NEWS
65
9 312828 005619

1

8/6/95 $50

0600 CRC

1400 to bed

2130 Hotel $80

Bulu $60

Need Fuel

Mixed Argo [illegible]

outboard oil

Fri to Bill [illegible]

get gear [illegible] bed

samples

CRC

w/ [illegible]

To Isd

Pack gear.

GR Grossmann Isd.

Photos

ACR — Sweeps Alcohol Jars

" — w/ samples Top / Bot / Turbid.

GR — Computer

Topo Measure

Camera

to over lake

1330 Camp Isd

1435 Colony Isd

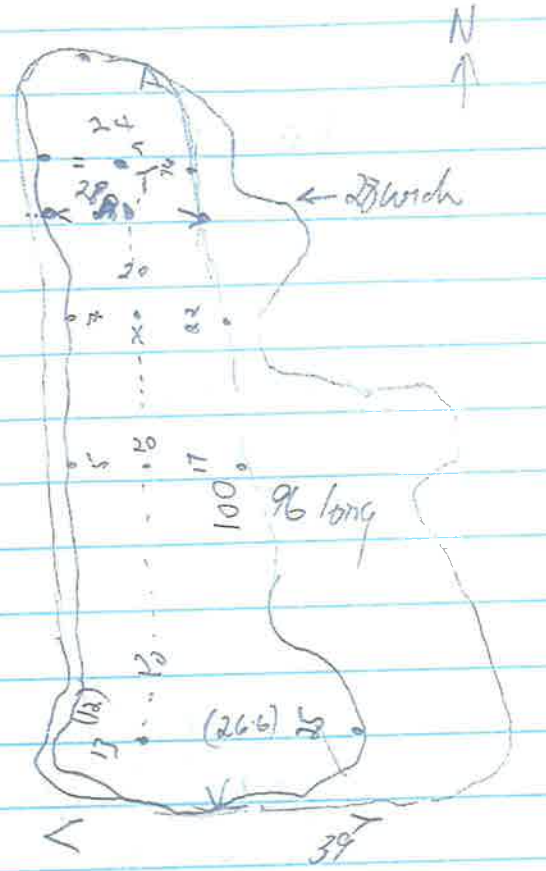


Photo #

#21 egg plant Newsletter

22 "

Xoover Lake Depth

— 53 cm

Bast 6

Pipit 1

White Backed Swallows 1

Banded Lapwing 2

Avocet 7

Stilt 2

Gull 11

White winged Wren

Little Crow (heard)

RCAP 1 Ad + 1 juv

9/6/95

Xoover Lake

Brown Falcon

2 Coot with young 3

3 MUSD 38

PASD 1 ad

LIGD 1

Sat Am

0500

MUSD heard frequently

Coot Juv 3

10/6/95

0530 up

load....

0955 To Marmina

1108 Jeedo mya

0.0 Turn Left Roodyne

10.3 Turn Rt Morapoi Stn

10.8 Railway & Fork

Take left

21.5 mill turn left thru gate

before mill

Henderson

29.2 Track to Rt

30.4 gate open

32.4 cattle pit & fork go strait

ahead

40.6 Gate

43.1 Pipe & track in from left

46.5 Gate closed

48.8 outstation

48.8 Outstation thru gate

49.2 ——

50.0 gate closed

54.2 gate closed

62.8 gate closed

Continuing down Donkey Rd

64.9 track in from left

with tyres

Airstrip ?

67.4 Gate Turn Rt along

fence

69.6 grid

76.0 grid 1315 Hrs

follow fence

78.5 Goongarrie NP sign

turn around

lunch to 1350

87.5 Grid turn west along

fence 1359

8

87.5 West heading

92.2 gate keep west

92.5 forks ⇄ take Rt

93.4 forks ⇄ take Rt

100.6 x road tracks

continue on break

103.1 Gate & Dam

103.4 drive over new fence

106 ?

1500 at lake

9

1545 To Lake

Depth at 77 22cm deep

2nd leg from shore

Marmion ①

Sweep 180 paces

equates to 150 m.

full depth of net

110 cm

Top ?

Temp 12°C

pH 7.39

1600 Argo'd to big isd to west

10 - 15000 Bust with 1000s chick

in SW corner

Gyst 3. 3. 2

Shel. 1

10

Drove to edge of lake & set up camp in Mulga.
Line of survey pegs into lake & across
Used 2nd peg for site placed over own peg nearby.
Arrived to big ied
lots of rafts of chicks accompanied by adults.
Some families of younger chicks

11

T64

12.2

11/6/95

Marmion

0930 5 caught

082 95501 – 5

Band # wt

(1011) 506 – 19

less 10 gm 128

40

38

49

41

30.

Dead Bird #1 JUV

wt 32 gms

Planaria in Oes Kept

BAST #2 JUV

Wt 35 gms

Ostracods in Oes Kept

14

1148

082 95568

1223 95606

Lunch
1250 95607 - 37

1317 38 — 630

1416 finish 95638 - 69

1423 95670

1443 94

Released with Ad. in

attendance.

Older chicks moved off

ahead leaving Ad. & some

companies and eventually

rejoined main group of

young birds

1507

Completed bands 95700

+ 13 flagged no bands

15

1342 1116

Landed on small isl.

16 dead chick 1-3 days old

inspected ... No breeding

birds washed up on shore

& stranded on exposed

mud flats.

Large group Ad + juv in band

leading (feeding) east

Yellow flag Rt Tibia

Band Left Tibia

AC adamant that this square

used at Ballarat

check with Clive

16

11/6/95

1610

Collected Cavity #1

1 Ad. 5 chicks 2-5 days

Placed in bag - proceeded to Conf

Sweep

Tot #

Sal 46‰ (ACh)

pH 7.94

Family 1.1 Chick 39 gms Yolk

Sac large

1.2 34 large Yolk Sac

1.3 33 gms large Yolk Sac

1.4 42 gms Lge Yolk Sac

1.5 32 gms Lge Yolk Sac

17

Family # 1.6

Adult

Wt 221 gms

Male ♂ Tarsi 44.4 mm

Wl 199 mm

Fully developed breast band

Total head 118.7 (+ Bill)

18

my 7:04 = 7:00 Real
for 12/8/95 19
Call Andy at 7pm

~~On 5270~~

or

7:05 on 5833

or

7:10 on 8070

Andy is 0108
Goldfields 8

Route
Lat.
Long
Size
Active
Access

gloves

12/6/95

0600 B'fast & Load & Sort gear

0700 Tranby left

0800 Depart for Flagging

0842 Headed East for 5 mins
No chicks at all in deeper water.
Headed west for 10 min to pelican catch area
Large Nos loose creches with many of adults as far as can see to West & Nth. 0900
Caught 30 & flagged left tibia loose creche. Drove up behind & ran behind group

~~Then~~ Released with adults & broods

Caught 5 in family & released with parent

Caught all & released with 7 parents

0956

+ 23 released with 5 adults

left 3 in a box to decay.

+ 6 2 families released

Adult flew back after 3 mins

1043

2/6 ~~No~~ Mammia

1106 Collected family 2

D = 29 cm

5 Yang

1 Ad.

Not seen feeding

Collected enroute to Flaggy

Position

29 47 46

121 29 13

at 1125

Argod to Card Bay

Caught 22 releasd w/ ad

lunch 1230

Caught 9 released with Ad

25 mixed ages.

Colony
300° from Camp

1456. 12 flags left

Released first batch
amongst creche of
30 and 12 adults

Creche of 18 Ad + 36 Juv
loose mostly families of
2-5 day old chicks

Family 5 D = 9cm
4 D = 12cm
3 D = 5cm

5.1 Juv. 5A
Wt 35 gms 0.25 ostracods ants coleopt
Wing 25 mm 9/13 kept
Total Head 52.1
MTarsus 24.1
Bill 22.2

5 B (5.2)
wt 34.0 gms
Wing 25 mm
Tota Hd 50.2
Bill 29.8
MT 24.9

26

12/6/95

Family 5 A1

1 Wt 205 gms

2 Head 68.5

3 Total H. 104.9

4 Metat 32.0

5 Wng 193

ostracods ♀♀ kept

♀♀ kept

♂♂

Tarsi 14.4

Breast well developed fully

Belly Same

Brood patches Yes

27

Family 4

4A 30 gms

T Head 46.3

Bill 23.6

MT 22.7

Wng 36

4b

Wt 34 gms

MT 23.5

TH 49.8

Bill 26.3

Wng 23

♀♀ Backfilled with Ostracods

♀♀ kept

28 12/6/95 Families

4c

Wt 31 gms
MT 24.1
TH 49.9
B — 26.5
Wing 25 mm

4 Adult

Wt 200 gms
3m —
T4 —
Wing 189
MT 34.3
Band Strong FD
Belly "
Broad Patches Yes
Oes Ostracods +
giz kept

damaged
"

Tarsi 15.5
10.4

3A Wt 31 gm
MT 23.3
TH 48.8
B 23.8
W —
Oes Ostracods
giz kept

3b

Wt 34 gm
MT 25.3
TH 50.94
B 25.9
W —

30

12/6/95

BAST 3 Adult

WT 232

Bill 71.9

TH 107.8

MT 32.5

W. 202

Brood Patch Yes

Band Fully Developed

Belly Same

♂

Tarsi 20.1 Left

14.6 Right

31

12/6/95

Family 2A

WT 34.9 gms

MT 24.4

TH 51.5

B 27.3

W —

Oes empty

2b 32.0 gms

TH 49.7

B. 26.5

MT 25.2

W. —

Oes

gg

2C

WT 30 gms

TH 52.3

B 31.8

mT 25.6

W —

025

Jim

Adult 2 ♂

WT 238

TH 111.5

B 74.7

mT 35.0

W 208

Brood Patch Yes Cond Strong

% Belly 80%

Testes 17.2

13/6/95

0625 To colony

Gyps 4
BTG. 8
S Wdr 30
masses of adult ibises
at NE end of Big Isd
2-3000 Ad.
of which 1000 with no chick
Proceeded west along NE side
of Big Isd = into deeper
water

Drove to top of west
end of Big Isd. &
with Telescope Walked
along to Cart on Shore
of marked

Approaching Colony
28 chicks 18 Ad in
loose creche 500 m away
numerous dead chicks
on strand line
at colony at 0755
300 adults at water
edge in alarm
Peregrine flew low over
flock & colony out into lake
300 m & back over colony
& off to SW

Wedge tailed Eagle took off
as Peregrine flew close to it.
Landed off west. Took off
from clear 300-400 m away

Birds very nervous with WTE
sitting 400 m away on crest of low
samphire dune. Constantly flying off
the nests & running back up the
hill

About 30 chicks at water edge with
mass of Ads

Two chicks about 40 m from colony
[illegible] as they walk along water edge
Others preening at water edge or
[illegible] above it.

♂ attempting cop'n with unwilling
partner ♂ or ♀?

1 Ad on haunches (knees) fluttering
trying to attract chick who came!
[illegible]

Little Falcon swamphen
colony Yellow face Black head

Photos 11, 12, 13
Colony from SE

Sight 1.

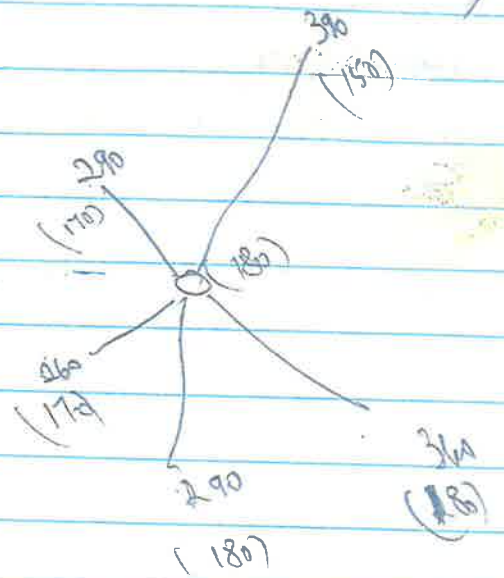
#2 egg hatching chick down
of 1-3 days
[illegible]

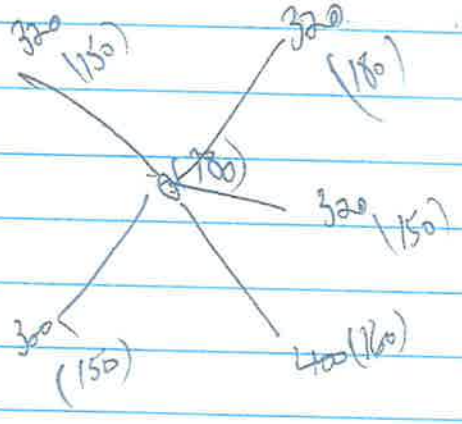
2' nests with chicks
mass of adults disturbed
colony, groups of 10 or
15 [illegible]

29 44 36
121 29 13

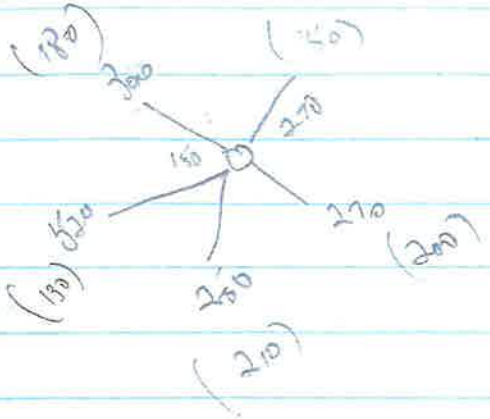
40

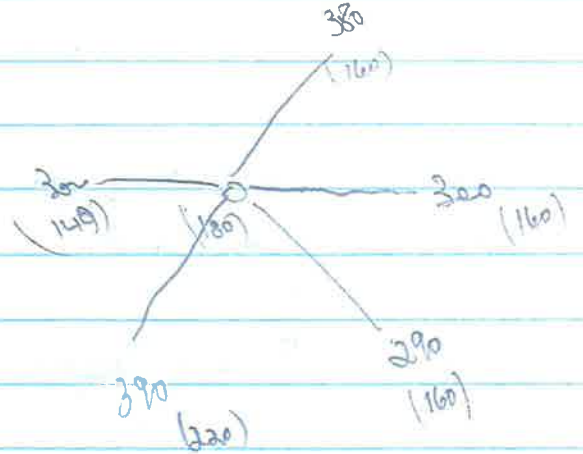
( ) diameter





41





Depth Post all exp
Began measurements 0845
left at 0931

No Adc left near Isd
30 returned on our departure
but would not land
escorted us off (1B)
about 300 m from Cd.
Not counted about dog

WTC was at edge of colony
when we approached

0945 Birds began
regrouping on the
shore very slightly
some (2) chicks came down to
shore & found Ads

Estimate 100 nests with 1
to 4 eggs mostly 2+3
21 with chicks in nests
main part of colony finished ...
more eggs in nests to NW
of apparently active area
but all eggs 3+4's + some 5's
stone cold + appeared covered
in sand grain suggesting desertion
last week

On return 2 Ads 4 chicks
foraging on shore

Evident that the raptors had kept the birds off the nest since daybreak

Several newly hatched birds had died from exposure

other 1 day were almost dead

other older or stronger of pair was ok.

Vegtn Island covered with typical low Samphire + [illegible]

Colony area denuded except for Sarcocornia sp.

Photo of ↑

Samples of dominant sp.

13/6/95

Families on [illegible]

Ad	chick	age	days	Dead
2	4	2		
1	2	4	together	
2	5	4		
1	2	4		1
2	1	4		3
3	5	4		1
1	1	4		
1	2	4		
2	1			
2 [illegible]	1 Dead	+ 1 RNAV chick 2 days?		
56	—	—		

Photo of 2-3000 Ad + Young (2500 / 500)

2	8	7
1	3	4
24	10	7

RAd in large groups
feeding in shallow 5-10
cm

Some Cop'n occurring on flats

Crèche of 60 RAds running
ahead of us 100-150 chicks
loose arrangement caused by
our movement.

Juve predominantly feeding
in 5-10 cm

RCAP feeding in 5cm
long mass B?? to last
of cap feeding in
shallows

Colony ISD had much evidence
of egg fragments from previous
nesting attempts higher up on
ridge.

Scattered small colonies

Alan measured all

Left

J Leads

Tool Box

Stretcher

35l water Drinking

2 Seats

Camp

29 47 01 ?

121 33 06

Depth of post 992

880 mm

112 deep

Need Tac 2

Tools

Water

Fuel

0.00 Camp
3.4 Dam Fence Tk left
3.6 Thru iron gate
Take left track
14.4 Tank + gate
follow fence east
19.1 Goongarrie Rd Jncn
grid Turn Rt

33.4 Tonkin Rd Jncn
Turn Rt

94.7 Kal Menzies Rd

83 - 161 = 78 days
8
689
505

85 65
92 unstalled at Ballard 248
92 16.00 398
95 551
109 590
134 604
161 689

Arrived Pth 2300
Whoo 2330

Fax (07/06/1995) from JL to GBP with a four-page 'Revised Program Lake Ballard June 1995' with instructions for GBP, ACh and ACl regarding survey and other work to be undertaken at Lake Ballard and Lake Marmion from Thurs 8th to Wed 14th June 1995.

Inter alia the program refers to: a camera, suitable film types, need to replace the 'stuffed' dial calipers with vernier calipers; need to precisely measure the boundaries of the nesting area on the 1st breeding island (on Lake Ballard); 'Attempt to locate Marmion nesting island. If successful: ... [measure, photograph, sample plants, measure nest scrapes; record number of chicks & adults reaching water (i.e successfully leaving nesting island); note any predator / scavenger activity]'.

Check: was the program revised partly on the basis of an aerial survey of Lake Ballard and Marmion between sending out the draft program and sending out the revised program? Aerial surveys RMCR should provide the answer.

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

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

TO: GRANT PEARSON URGENT: YES / ~~NO~~

AT: WRC

..... Fax No. .....

FROM: J.C.

DATE: 7/6/95

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

Revised program — please ring me when have read.

No. of pages inc. this page: 6

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

REVISED [illegible]

[Grant: modify program as circumstances dictate. The important thing is to get the main tasks done]

Thurs 8 June

Grant Pearson and Alan Clarke drive to Kalgoorlie

Fri 9 June

GP and AC1 visit CALM office and pick up Argo keys (from June), wheel for trailer (from Andy Chapman) etc., make radio arrangements and telephone Jeedamya and Lake Marmion station (name?) to advise of plans.

GP, AC1 and ACh drive (2 vehicles) to Lake Ballard and withdraw all gear from Camp Island to Crossover Lake. Camp there overnight.

[Make notes on evidence of waterbird breeding seen while crossing Crossover Lake; measure this lake's depth and take water samples]

44.
147.

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

FAXED

TO: ANDY CHAPMAN **URGENT: YES / NO**

AT: KAL

Fax No.

FROM: JIM C.

DATE: 8/6/95

Your Ref:
Local Ref:

Revised program — for info.

Thanks for the "flight report" — very good info collected.

No. of pages inc. this page: 5

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

REVISED PROGRAM

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[Make notes on evidence of waterbird breeding seen while crossing Crossover Lake; measure this lake's depth and take water samples]

(1) 142. 145.

GRANT: REVISED LIST OF SOME ODDS AND ENDS REQUIRING ATTENTION

* Is the leg flag glue at Woodvale (if not, it is on Camp Island)? You should obtain another tube in any case as the first tube probably won't do more than 50-100 flags.
* I have mailed Australia Post to you a bag of leg flags, two plastic weighing cones & your pocket radio.
* Banding pliers in dissecting box at Woodvale? I think pair also at Ballard (Camp Island or in trailer).
* I assume you have a work camera you can take.
* If you are buying film the 100 ASA Ektachrome is excellent (remember to have Churchills number them).
* You will need to make another wing rule (no less than 25cm). I have the oversized rule from the last trip.
* The dial calipers are stuffed. You need to buy or borrow a "pair" of good quality vernier calipers
* You should have received copy of fax from Mark to me concerning his last trip and location of Argo keys etc. Note that ABC tent has gone back to Melbourne.
* Andy Chapman has one tyre from trailer in Kal (was flat, now fixed).
* 10' punt from Bsn is bungless.

REVISED PROGRAM LAKES BALLARD & MARMION JUNE 1995

[Grant: modify program as circumstances dictate. The important thing is to get the main tasks done]

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Fri 9 June

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[Make notes on evidence of waterbird breeding seen while crossing Crossover Lake; measure this lake's depth and take water samples]

Sat 10 June

Boat to Camp Island. Measure water depth, temp, pH & take water samples, do standard invertebrate sweeps near Camp Island

Precisely measure (in order to precisely determine area) the boundaries of the nesting area of 1st breeding island).

Assuming no or very few flightless chicks encountered, return to camp on south side of Crossover Lake, withdraw all gear (except water level recorder & droppers/pickets) from Ballard area, head for Lake Marmion and establish new campsite near its shore.

Sun 11 June to Tues 13 June

At Lake Marmion.

[Note that ACh needs to be back in Kalgoorlie on Sun night]

i) Establish depth gauge(s) and on first and last days measure water depth, water temp, pH & take water samples, do standard invertebrate sweeps at a marked location (i.e. same routine as previously at Ballard)

ii) Locate flightless chicks, collect 5 family parties for oesophagus and proventriculus+gizzard contents analysis (details below).

iii) Band and flag flightless chicks (details below).

iv) Attempt to locate Marmion nesting island. If successful:

* measure (or pace) the nesting area so its area (m^2) can be determined.
* photograph island and nesting area.
* sample dominant plant species.
* measure diameter & depth of a scattered sample (20-30) of nest scapes.
* in unlikely event hatching chicks being led off island, record number of chicks & adults reaching water in sample (50-100 will suffice) of family parties. Repeat at 1-2 day intervals if not too time consuming (the other work is more important than repeats).

Wed 14 June

Stockpile Argo and other appropriate gear (one punt?) at Lake Marmion, Station Hstd or Kalgoorlie. Return to Perth with remainder.

Collecting Methodology:

* AC1 in one punt and GP & ACh in other.
* choose **solitary** family parties with **single** adults.
* ACh shoot the adult, gather chicks and dispatch (ACh technique).
* attach waterproof label to each bird and label "Adult (1-5)" and "Chick (1a, 1b etc, 2a, 2b etc to 5a, 5b etc)".
* weigh each bird.
* record "completeness" of breast band and black belly of adults.
* record presence/absence of brood patches (bare skin) on either side of sternum.
* dissect out (scissors & tweezers) oesophagus & gizzard (incl proventriculus) of each bird. Store each separately in 70% alc with label (Adult 1, Chick 1a etc **plus date**).
* while GP & ACh do the above, AC1 to measure water depth, take water samples, do standard invert sweeps (as on last trip).
* keep bodies (take back to camp at end of day and that night **sex and measure gonad size of the adults** and measure bill, head+bill, metatarsus & wing of adults and chicks).
* **retain bodies of chicks (and preferably of adults also) to give to WA Museum (Ron J. is keen to have even if split up middle & bloody).**
* carefully replace alcohol (except dregs) after 24 hrs or so. Replace again one week later.

Banding and Flagging Methodology (based on water deep enough to use boats)

* when find chicks, have GP, AC1 & ACh in 12' punt towing 10' punt.
* have Nally bin with towel (at camp) in bottom to keep chicks dry/clean.
* Initially at least, AC1 driver, GP catcher and **bander**/flagger, ACh flagger
* **band on right tibia** (i.e. above "knee") and **flag on left tibia** every chick.
* note that the bands are difficult to close properly and patience is required.
* to apply flags, hold flag open, slip onto tibia, apply glue to both surfaces, hold together for 1 minute (timed).
* note that flag surfaces to be glued **must** be clean and dry and **must not** move at all while being held together.
* remove any miss-applied bands (special pliers) and flags (separate "wings" with knife)
* AC1 & ACh can advise on the most efficient tactics in catching and returning chicks
* 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.

If too shallow for boats, note that Mark found Stilt very shy of people on foot but very accepting of Argo.

OTHER TASKS

* record dates of definite drinking by Stilt for comparison with salinity.
* make notes of any predator/scavenger activity you see.
* record other waterbirds seen on Lake Ballard.
* keep me informed (every day or two) of progress/findings.

Fax (06/06/1995) from JL to John Wetherall (Murdoch Uni – OOPS! Should have been Curtin Uni!! JL 19/02/2014) seeking a progress report 'Regarding progress with DNA analysis of the 36 Banded Stilt eggs from the Goldfields'.

FAXED

136.
137.

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

or other member of staff? in Prof. Wetherall's absence

TO: JOHN WETHERALL **URGENT: YES / NO**

AT: MURDOCH UNI

Fax No.

FROM: JIM LANE

DATE: 6/6/95

Your Ref:
Local Ref:

Regarding progress with DNA analysis of the 36 Banded Stilt eggs from the Goldfields — you suggested I contact you about [redacted] now for a progress report. Our field program is going well and the DNA results should prove fascinating!

No. of pages inc. this page: 1

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

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.

Inter alia, on 12/05/1995 he/they 'Filmed about Camp Island and deserted [main] colony' and on 13&14/05/1995 they 'Filmed about Camp Island and second colony island'.

Under the heading 'Observations' they describe 2-3,000 adult BaSt behaving on 12/05/1995 as though they might have been about to re-nest at main colony island (JL's interpretation). JL faxed a copy of this fax to CDTM on 06/06/1995.

12t.
133.

Facsimile Cover Sheet

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

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

Date: 06/01/95 ← 15 June 95
Pages including this cover page: 5

Comments:

Jim

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

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

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

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

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

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

south side of Crossover Lake.

3 wheels only.
The key is with Andy Chapman

120.
132.

Count letter another long card?

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

from

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

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

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

North-West

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

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

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

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

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

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

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

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

18/5/95 Returned to Kalgoorlie

OBSERVATIONS

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

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

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

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

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

118
130

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

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

Mark said Argo would be good catching platform Also good for tracking chicks when separated from

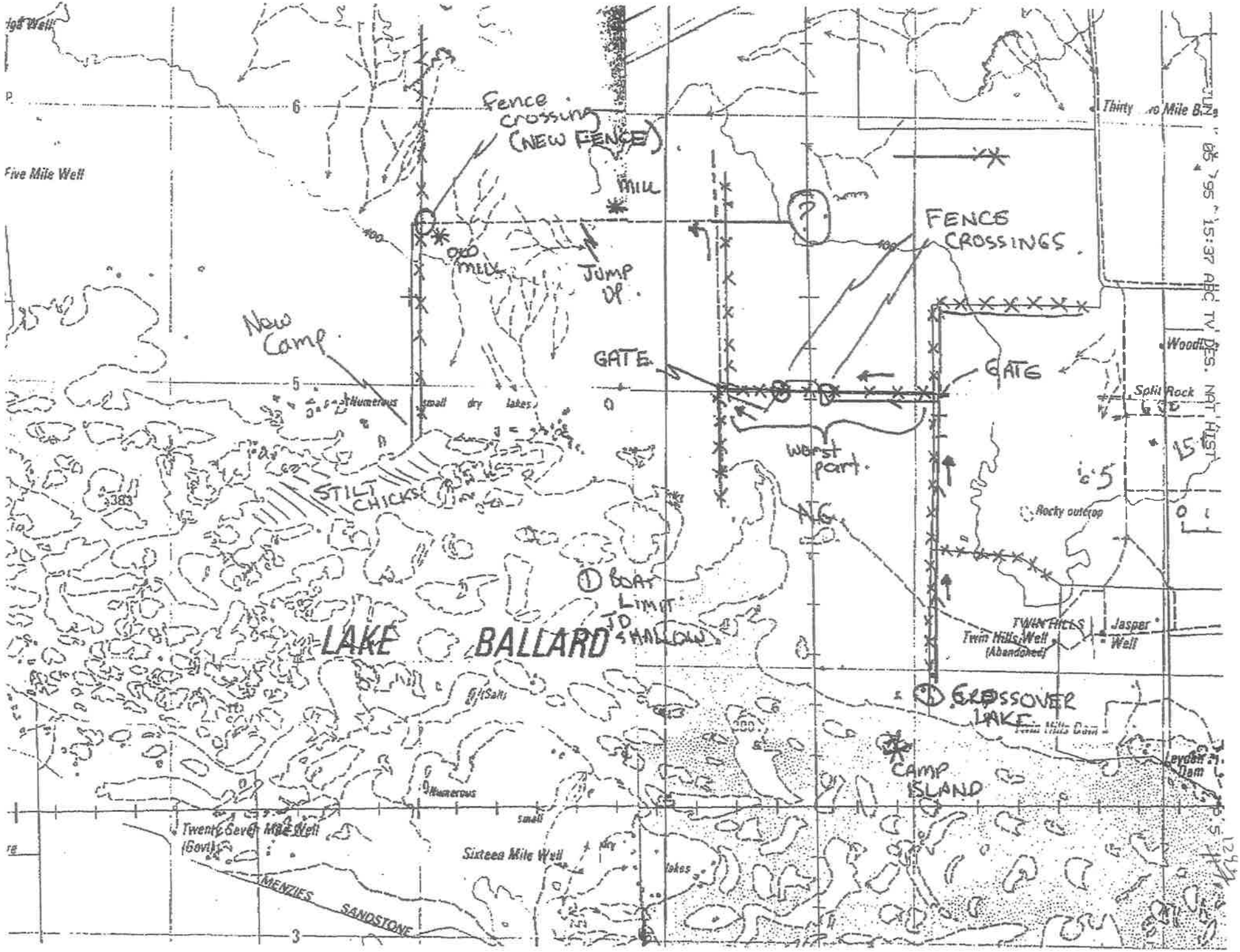
The final page of this fax is a map that we have marked up with the route to New Camp. John Finlayson (Jeedamya) gave us the general directions and told us of the track that goes right to the edge of the lake at New Camp that I have marked on the map.

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

Regards

Mark Lamble

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



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 suggests that: 'If a new colony is found we need to take steps to get more data in areas where we area still deficient, i.e. incubation period & sharing of incubation duties. Also need to .....'.

2/6/95

From Clive Minton 03-9589-4901

To Jim Lane 097-521-432

Many thanks for copy of draft work programme. Seems fine to me & I have only minor suggested additions.

(1.1) Try & get some photographs of chick flocks from the air. Will enable us to cross check count estimates if proper cross referencable records are kept. Also for publication purposes.

(1.3) "Bury bodies". Wouldn't it be worth keeping these sexed & measured breeding birds, or at least giving them to Ron Johnson at the museum to make skins? Into bones but in due course with a good enough sample we may be able to find consistent differences in breeding damage between the sexes. It seem a waste not to make fullest possible use of "sacrificed" birds.

(1.4) I fitted band was on left tibia & flag on right tibia. But I may have been wrong. Please recheck your official permission (& note) may have done it wrongly !!).

(1.4) I presume you are recording band numbers just on members of some breed (where identifiable). If not be I think we should try to.

(1.4) If a new colony is found we need to take steps to get more data in areas where we are still deficient ie. incubation period & staging of incubation duties. Also need to collect data to see if average clutch sizes are same as first nesting attempts.

Therefore eggs in "just laying" nests need to be marked, chicks in "land" areas need to be counted and/or photographed.

Hope these suggestions can be incorporated into final work programme.

Best wishes, Clive

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 refers to a camera, suitable film types, the need to precisely measure the boundaries of the nesting area on the 1st breeding island (on Lake Ballard) and includes a detailed description of the 'Nesting Colony Methodology' to be followed.

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'.

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

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

AT: MELB.

Fax No.

FROM: JIM LANE

DATE: 2/6

Your Ref:
Local Ref:

Accompanying is a draft Work Program for Grant and co. to work to next week.

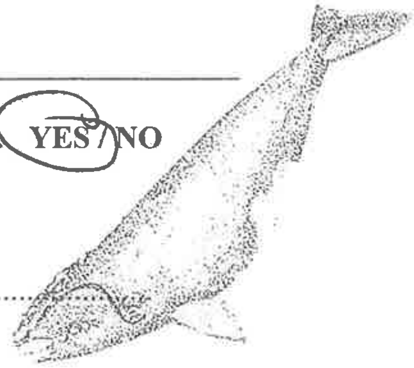
I thought you would be interested to see it and would appreciate any comments. Cheers

[signature]

No. of pages inc. this page: 5

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

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



TO: G.P. **URGENT:** YES / NO (YES circled)

AT: WRC

Fax No.

FROM: J. L

DATE: 2/6

Your Ref:
Local Ref:

Re Bellard — Draft.

No. of pages inc. this page: 5

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

Some urgent:

GRANT: SOME ODDS AND ENDS REQUIRING ATTENTION

* Is the leg flag glue at Woodvale? You should obtain another tube in any case as the first tube probably won't do more than 50-100 flags.
* I have today mailed Australia Post to you a bag of leg flags and two plastic weighing cones. + your radio
* Banding pliers in dissecting box at Woodvale?
* I assume you have a work camera you can take
* If you are buying film the 100 ASA Ektachrome is excellent (remember to have Churchills number them).
* You will need to make another wing rule (no less than 25cm). I have the oversized rule from the last trip.
* The dial calipers are stuffed. You need to buy or borrow a "pair" of good quality vernier calipers
* I have sent fax today to Jeremy Hogarth asking whether ABC tent still on island; where Argo keys are and how much fuel and water is a) at the trailer and b) on the island

---

DRAFT PROGRAM LAKE BALLARD JUNE 1995

Wed 7 June Morning

Andy Chapman + 2nd observer fly Lake Ballard. Telephone or fax Grant Pearson at Woodvale immediately after flight to confirm still chicks on lake.

Objectives (priorities highlighted)

i) Are there still Banded Stilt (BaSt) on the Lake? If so, how many and in which part(s) of Lake?
ii) **Are there still flightless chicks on the Lake?** If so how many and where?
iii) **Is there any current nesting activity on the Lake?** If so, what is location of island(s) and approx number of nests?

Methodology

* Fly east-west transects of lake to find BaSt and any current nesting.
* Fly low over flocks to see if capable of flight or not.

Equipment

* Maps (1:250,000 ?) to record locations of Bast, flightless chicks and current nesting islands.
* GPS (plane's?) to fix location of any current nesting islands
* 35 mm camera with Ektachrome 100 ASA (or Kodachrome 64 ASA) to photograph current nesting islands).

Extra

* Fly one transect of Lake Marmion on way back to Kalgoorlie to check for nesting and/or chicks. Record appropriate info.

Thurs 8 June

Grant Pearson and Alan Clarke drive to Kalgoorlie

Fri 9 June

Morning

Gp, ACl and ACh drive (2 vehicles) to Lake Ballard and establish camp on Camp Island. Make notes on evidence of waterbird breeding seen while crossing Crossover Lake; measure depth; take water sample(s).

Afternoon

Measure water depth, temp, pH & take water samples, do standard invertebrate sweeps near Camp Island

Precisely measure (in order to precisely determine area) the boundaries of the nesting area of 1st breeding island).

If time permits, start collecting family parties for oesophagus and proventriculus+gizzard contents analysis (details below)

Sat 10 June

Morning

Collect family parties for oesophagus and proventriculus+gizzard contents analysis (continue until 5 family parties collected).

Afternoon

Banding and flagging of chicks.

Sun 11 June

Banding and flagging of chicks.

ACh needs to be back in Kalgoorlie on Sun night. Make notes on evidence of waterbird breeding seen while crossing Crossover Lake in the afternoon.

Mon 12 June and **Tues 13 June**

Banding and flagging of chicks.

Wed 14 June

Again measure water depth, temp, pH & take water samples, do standard invertebrate sweeps near Camp Island (same procedure as Fri afternoon).

Return to Perth

Collecting Methodology:

* ACl in one punt and GP & ACh in other.
* choose **solitary** family parties with **single** adults.
* ACh shoot the adult, gather chicks and dispatch (ACh technique).
* attach waterproof label to each bird and label "Adult (1-5)" and "Chick (1a, 1b etc, 2a, 2b etc to 5a, 5b etc)".
* weigh each bird.
* record "completeness" of breast band and black belly of adults.
* record presence/absence of brood patches (bare skin) on either side of sternum.
* dissect out (scissors & tweezers) oesophagus and gizzard (incl proventriculus) of each bird and store separately in 70% alcohol with label (Adult 1, Chick 1a etc **plus date**).

* while GP & ACh do the above, ACl to measure water depth, take water samples, do standard invert sweeps (as on last trip).

* keep bodies (take back to camp at end of day and that night **sex and measure gonad size of the adults** and measure bill, head+bill, metatarsus & wing of adults and chicks).
* bury bodies.
* carefully replace alcohol (except dregs) after 24 hrs or so. Replace again one week later.
* Andy Chapman has one tyre from trailer in Kal (was flat, now fixed).
* Also ask Andy whereabouts of 2nd outboard and any other gear ABC may have left with him.
* 10' punt from Bsn is bungless.

Banding and Flagging Methodology

* when find chicks, have GP, ACl & ACh in 12' punt towing 10' punt.

* have Nally bin with towel (at camp) in bottom to keep chicks dry/clean.
* Initially at least, ACl driver, GP catcher and **bander**/flagger, ACh flagger
* **band on right tibia** (i.e. above "knee") and **flag on left tibia** every chick.
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Nesting Colony Methodology

If you find one and can readily get to it on the ground (one visit will suffice):

* measure (or pace) the nesting area so its area (m^2) can be determined.
* visually assess stage(s) of development of colony (laying, incubating, hatching).
* photograph island and nesting area.
* sample dominant plant species.
* in unlikely event hatching is underway and chicks are being led off the island, record the number of chicks & adults reaching the water in a sample (50-100 will suffice) of family parties. Repeat at 1-2 day intervals if not time consuming (the other work is more important than repeats).

OTHER TASKS

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

TO: G.P. **URGENT:** YES / NO

AT: WRC

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

FROM: J.L

DATE: 2/6 **Your Ref:** .....
Local Ref: .....

Re Bellarb — Draft

No. of pages inc. this page: 6

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

FAXED

Some urgent.

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cassette recorder.

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(RJ)

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(3)

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* keep me informed (every day or two) of progress/findings (radio?).

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, ACl & ACh in June 1995.

Inter alia reads 'measure 1st colony precisely'.

See faxes above for draft (02/06/1995) and revised (07/06/1995) programs.

Decide when + how long. 134. 121. 120

NEXT BADGOOD TRIP (6/95)

- GP, ACI, ACh
- Air survey? who? when? where? ← new colonies, loc + No. of adult/young.
- depth, temp, salinity, P, turbid?, etc. ← + sweeps.
- gut samples (family photos) ← + sweeps + other data
- measure 1st colony precisely.
- photos of – water clear – turbid
  –
  –
  –
  –
- pull out gear?
- drown board depth?
- trailer wheel.
- my vehicle → Perth.
- no weekend o' time?
- I have flags.
- advice re: bench system and procedure – bin, towel, nets.
- how long to fledge?
- establish monitoring sub-project on coast.
-

- gear
- daily work program.

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.

A note relevant to nesting activity is: ' – all birds left 2nd island'. This would have been the 2nd BaSt nesting colony (that was worked on). Some detective work, e.g. by comparing with Mark Lamble's fax of 05(01)/06/1995, could probably put an approximate date on this.

Tues
- all birds left 2nd island.
- all crèching at W end of lake.

transit material
- pinnacle.

ABC left that night

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

Andy ~~K~~ Green → weekend OK.

Jeremy 30/5 — pay for air survey?

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

Clive — - data coming.
- flag without bands.
- agthings.

- 4 weeks.

Clive - will do SA + visit.

Ad... Bands

... for ... Stilt + Wagyjim

PROJECT

R - 18 mths → LMT — go out looking for banded + flagged
- secure return to natal area
(= ... propn. without black + chest bands)
50% juveniles.
- Rothmst — adults back first, or juveniles.

Fax Bird Notes article to Clive

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

(Mark + Cam)

- 70 km from Island they found 1000s of chicks ~~[illegible]~~. – at least some near flying stage
- ~~[illegible]~~ Mark will fly to Mill Set
- Will fax his maps / notes to me next week and ring me
- they logged the Gogo many times
- no predators except wild ring[illegible]

- caught one banded chick – didn't get number but did record date, time, location

Handwritten notes 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)'.

GRANT

TASKS FOR SAT 8 → THES 11 APRIL 95 INCL.

1. Find 5 distinct families of Bast on the water (each 1 adult and 3–4 chicks). Preferably families that are feeding, but it is possible that little or no feeding by families will occur while you are there. Shoot the single, most protective adult in each family (sometimes there may be ~~a second protector~~ a second, non-protective adult with a family). Collect all the chicks of the family. Retain the oesophageal contents of each adult and chick. If oesophagus empty — check stomach for contents and retain if any. Measure the bill length (not incl. head) of each chick and identify which oesophageal contents go with it (ie. cross reference). Also check for presence and size of yolk sac in each chick.

2. Take a surface water sample wherever you collect a family group (or single adult) — for salinity & and total P unfiltered. Also measure water depth. Also do a standard, surface-only, invertebrate sweep at each shooting location.

and turbidity →

3. Opportunistically, record number of adults and chicks in each family group you see, and number of families grouped together. Record only definites, not maybes. Record any genuine creching (undisturbed families of chicks growing together).

12. Transcribe your annual survey type

→ page 2.

Covent's tasks Sat 8 → Tues 11 April 95.

4. Each day, make a note of whether you see any adults (or chicks) drink (re salinity)

5. Take water samples at your standard location on Saturday and Tuesday (top and bottom for salinity, tops only for total P and pH and turbidity). Do standard sweep (invertebrate) samples at same time (was it three on each occasion?)

6. Make a trip to the 2nd breeding colony (3.5 km west) and take vegn. samples from breeding island

7. While boating between the two breeding islands, measure depths and record positions (preferably with compass and map or photo).

8. Survey Crossover Lake for evidence of breeding activity. In particular search for young on the water (to compare with BaSt). Ideally do each day between 5 – 6 pm. Essential to do on Tuesday (as you leave?). Don't spend more than 1 – 1¼ hrs on each survey. (I have see GrTe, PeaD, Shel, PaBD, MusD, ManD, BSiD, Swan, Coot, HhGb, WfHn on the lake).

9. No one should walk through or otherwise disturb nesting area which has chicks. No banding of chicks (too small).

10. Keep leg flags + bands + colour bands + glue with your gear and bring back to Perth.

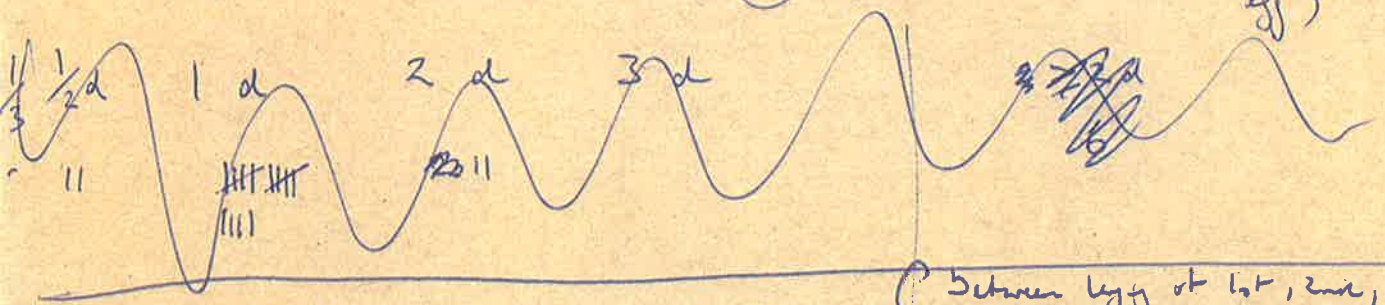
11. Record any predator activity

Several undated pages of scrawl by JL trialling several formats for understanding / tabulating / presenting laying rate data (from the 1995 BaSt breeding at Lake Ballard).

One favoured Table seems to have been the one headed 'Number of Eggs Layed at Intervals (between laying of 1st, 2nd, 3 egg and subsequent eggs) of ... 1/3 day, ½ day, 1 day, 2 days, 3 days'.

See beginning of this RMCR for further thoughts (23/2/2014) of JL on how to analyse the nest monitoring data.

No of Eggs Layed at intervals of (between 1st & 2nd or subsequent egg)



(between laying of 1st, 2nd, 3 egg and subsequent eggs.)

Number of Eggs Layed at Intervals of

1/3 d	1/2 d	1 d	2 d	3 d
6	1	1 ✓	2 ✓	
2	2	1 ✓	1 ✓	
3	1	2 ✓	1 ✓	
		2 ✓		
		2 ✓		
		6 ✓		
		1 ✓		
Totals 11	5	15	4	

GOOD (?)

This could be repeated (subdivided) to show intervals following 1st egg, then 2nd egg, then 3rd egg etc

still need rechecking

Number of eggs layed on first laying day of each nest

Number of nests with eggs layed at intervals of

... days

can't do easily as laying rates vary with nests.

Number of eggs layed at intervals of ... days between following laying of last egg only

1d	2d	3d
1	2	

Table: Egg layg intervals (1st + 2nd ggs)

max possible = 3

Number of days between laying of first + 2nd ggs	½d	1d	2d	3d
No. of Eggs	1	1 1 1	2	
	1	3	2	0

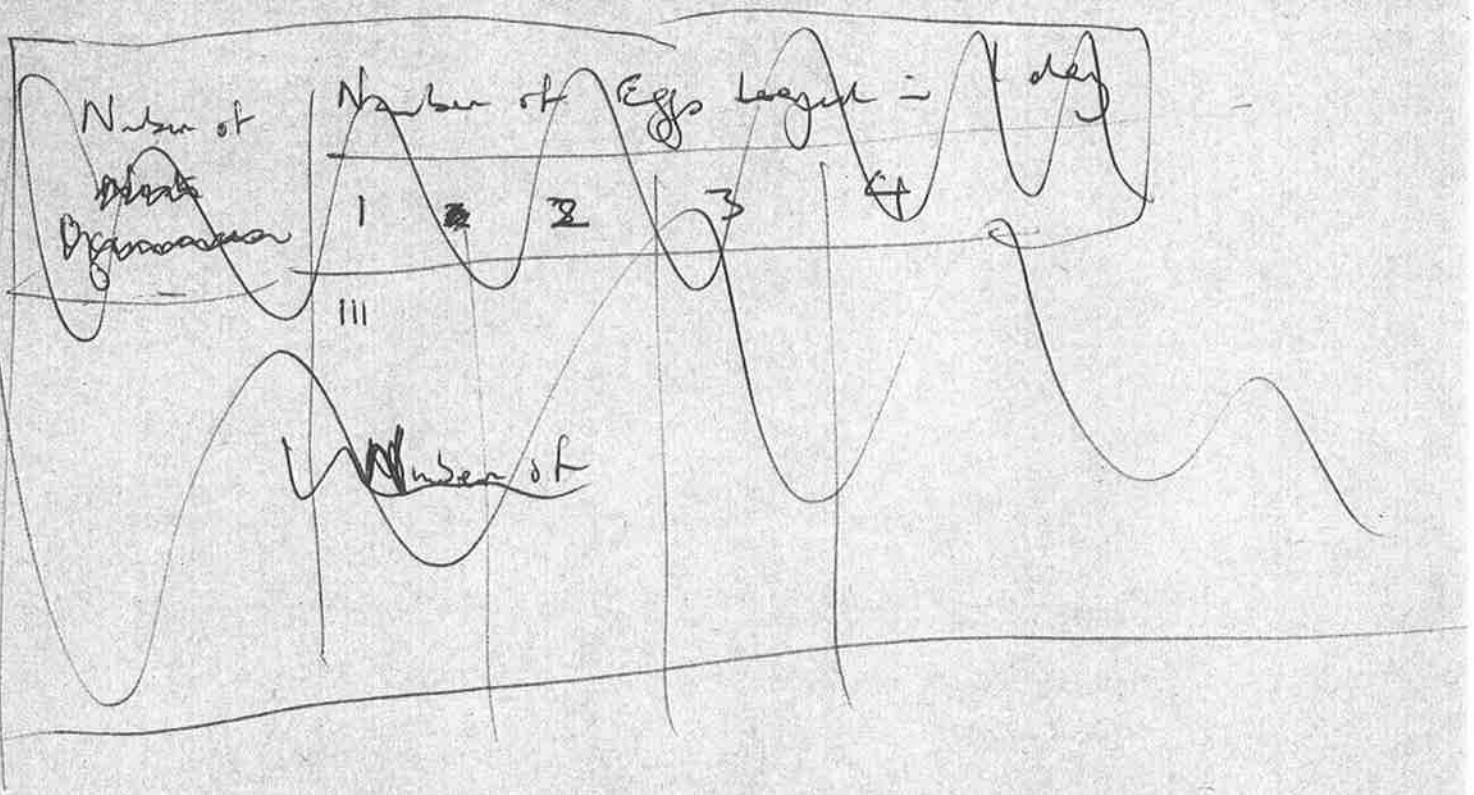
Table: between 2nd + 3rd egg

⅓d	½d	1d	2d	3d
2	1	2 6		
2	1	8		

Table - between 3rd + 4th eggs

⅓d	½d	1d	2d	3d
2	1 1	1 1	1	
1				
3	2	2	1	

Table 4th & 5th
1 egg 1 day



Number of Eggs / nest in nests already having 1 egg on day 1.

~~3~~ 2 eggs layed

Laying Interval ~~[illegible]~~	No. of Nests
1 day	

Monitoring began prior to laying of 1st egg (+ more than 1 egg laid) during laying period

LAYING CATEGORY	LAYING INTERVAL (days)	% OF NESTS	LAYING SEQUENCE	Nº OF NESTS
REGULAR	1	50%	0123 0012	1 2
	2	33%	0112	2
IRREGULAR	½ - 1	17%	0234	1

(2) Monitoring began between laying of 1st + 2nd eggs.

REGULAR	1 ≥ ½		1233 1222 1122	6 6 6
IRREGULAR				

Two undated pages of scrawl by JL which show a number of attempts at calculating / describing / tabulating BaSt laying rates. Presumably the data come from 'laying quadrats' established by JL at the 2nd (studied) colony (on Lake Ballard in 1995).

Of the 5 nests in which the first (and in one case, first and second) eggs were layed on day 2

2 nests had 2 eggs laid in 3 days (2 day interval between each egg)
1 " " 2 eggs layed = 2 days (1 each day)
1 " " 3 " layed = 3 days (1 " ")

or

2 nests each had 2 eggs layed with a 2 day interval

No. Nests	Eggs
2	

Of the 7 nests where monitoring began prior to the laying of the first egg (i.e. no. of eggs = nest = 0 and none then 1 egg layed = monitoring point)

3 eggs layed " " 1 day — 1 nest
2 eggs layed with interval of 1 day — 1+1 nest
2 " " " 2 days — 2 nests

4 eggs layed with interval of 1 day (2 eggs) and 2 = 1 day.

(1 nest yielding no info)

Laying sequence

Laying Interval	No. of Nests	Laying sequence
1 day	3	0012 (2 nests)
		0123 (1 nest)
2 days	2	0112
= 1 day	1	0134

~~Of 7 nests monitored from 0 eggs~~

Of 6 nests ~~monitored~~ values ~~monitoring~~ began prior to laying of 1st egg *
(*and more than 1 egg laid in monitoring period)

Laying regularity	Laying Interval	% of Nests	Laying Sequences	No. of Nests
Irregular	½ – 1 day	17%	0234 (1 nest)	1
Regular	1 day	50%	0012 (2 nests)	2
			0123 (1 nest)	1
	2 days	33%	0112 (1 nest)	2
				6

Of -- nests ~~monitored~~ ~~where~~ monitoring began ~~prior to~~ between 1st and 2nd egg

Laying Interval	% of Nests	Sequence	No. of Nests
< 1 day			
1 day			
2 days		1122	6
≥ 2 days		1123	2
1 – 2 days			

Two undated typed pages by JL using data from successive visits to 'Quadrat 5-8' (2nd Breeding Island, Lake Ballard, 1995') to calculate BaSt egg-layng rates.

Note that this is a single quadrat; that the data comes from a total of 51 nests visited four times, at daily intervals, and that this quadrat measured 2 metres x 2 metres square (presumably this was a 'laying quadrat' and all the 'laying quadrats' on this island had the same dimensions).

'Numbers/densities of nests and eggs in quadrat' on 4th, 5th, 6th, 7th April & 3rd May are also calculated. 4th – 7th April are the dates of the four visits referred to above.

Some important notes are listed on the second page.

The last section, headed 'Conclusion' is blank. Look for digital copy (not found in JL's current PC on 11/02/2014) to see if this was added to. Try searching old PC backups.

QUADRAT 5-8 (2ND BREEDING ISLAND, LAKE BALLARD, 1995)

Quadrat is 2m x 2m square

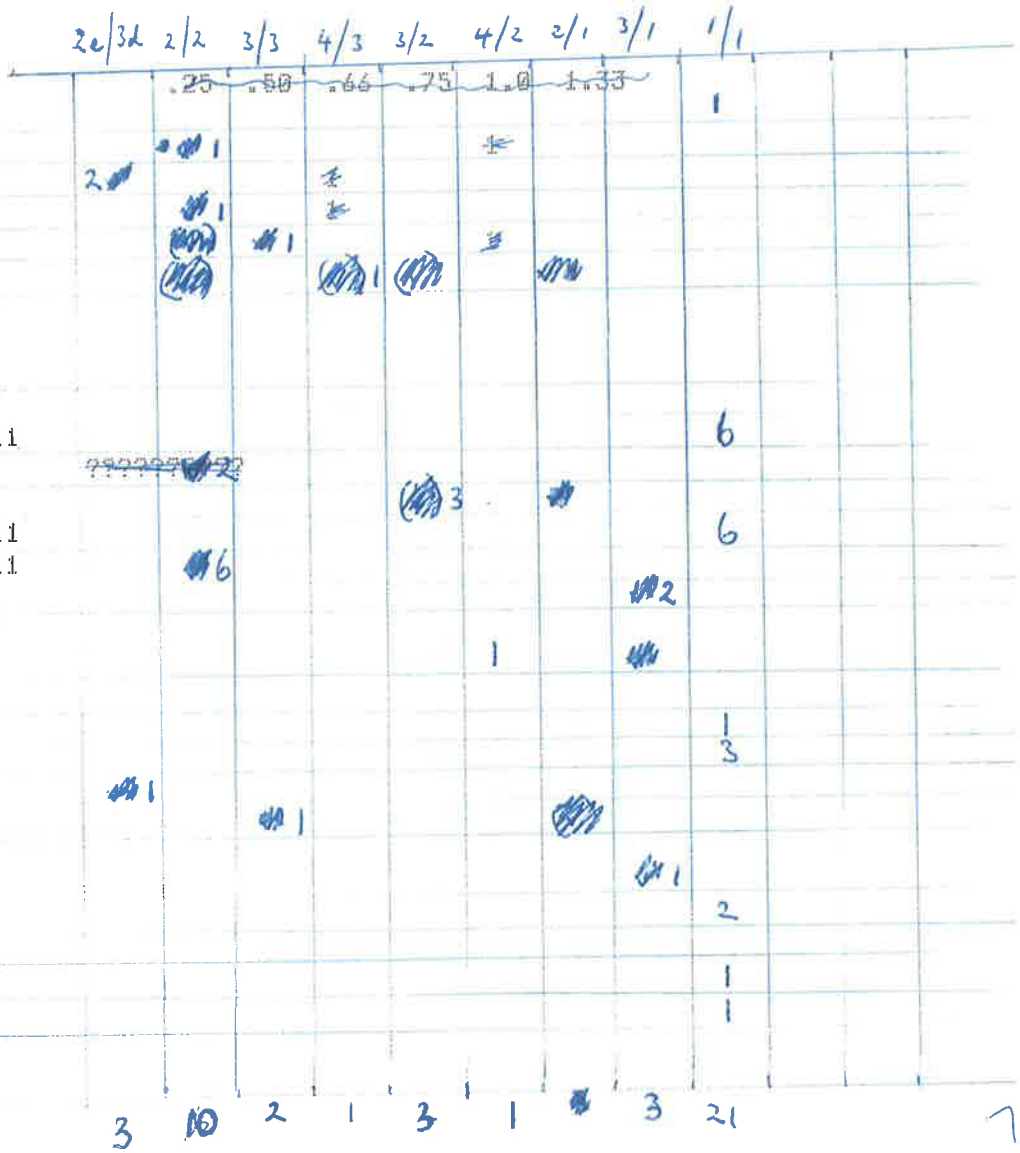
Summary Info

i) Laying rates

	0	0	0	1	1
	0	0	1	2	1
	0	1	1	2	11
	0	1	2	2	1
	0	1	2	3	1
	0	2	3	4	1
	1	0	0	0	1
	1	1	1	1	11
	1	1	2	2	111111
	1	1	2	3	11
	1	1	2	4	1
	1	2	2	2	111111
	1	2	3	3	111111
	1	4	4	4	11
	2	0	3	4	1
	2	2	2	2	1111
	2	2	2	3	1
	2	3	3	3	111
	2	3	3	4	1
	2	4	4	5	1
	-	1	1	4	1
	-	1	2	2	11
	-	2	2	2	1
	-	2	2	3	1
	-	2	3	3	11

Total 51

non-nests not incl



ii) Numbers/densities of nests and eggs in quadrat

Date	4Apr*	5Apr	6Apr	7Apr	3May
Nests*	41	47	49	50	51
Nests/m²	10.25	11.75	12.25	12.5	12.75
1e nests	29	18	5	3	
2e nests	12	22	27	23	
3e nests		4	14	16	
4e nests		3	3	7	
5e nests				1	

QUADRAT 5-8 (2ND BREEDING ISLAND, LAKE BALLARD, 1995)

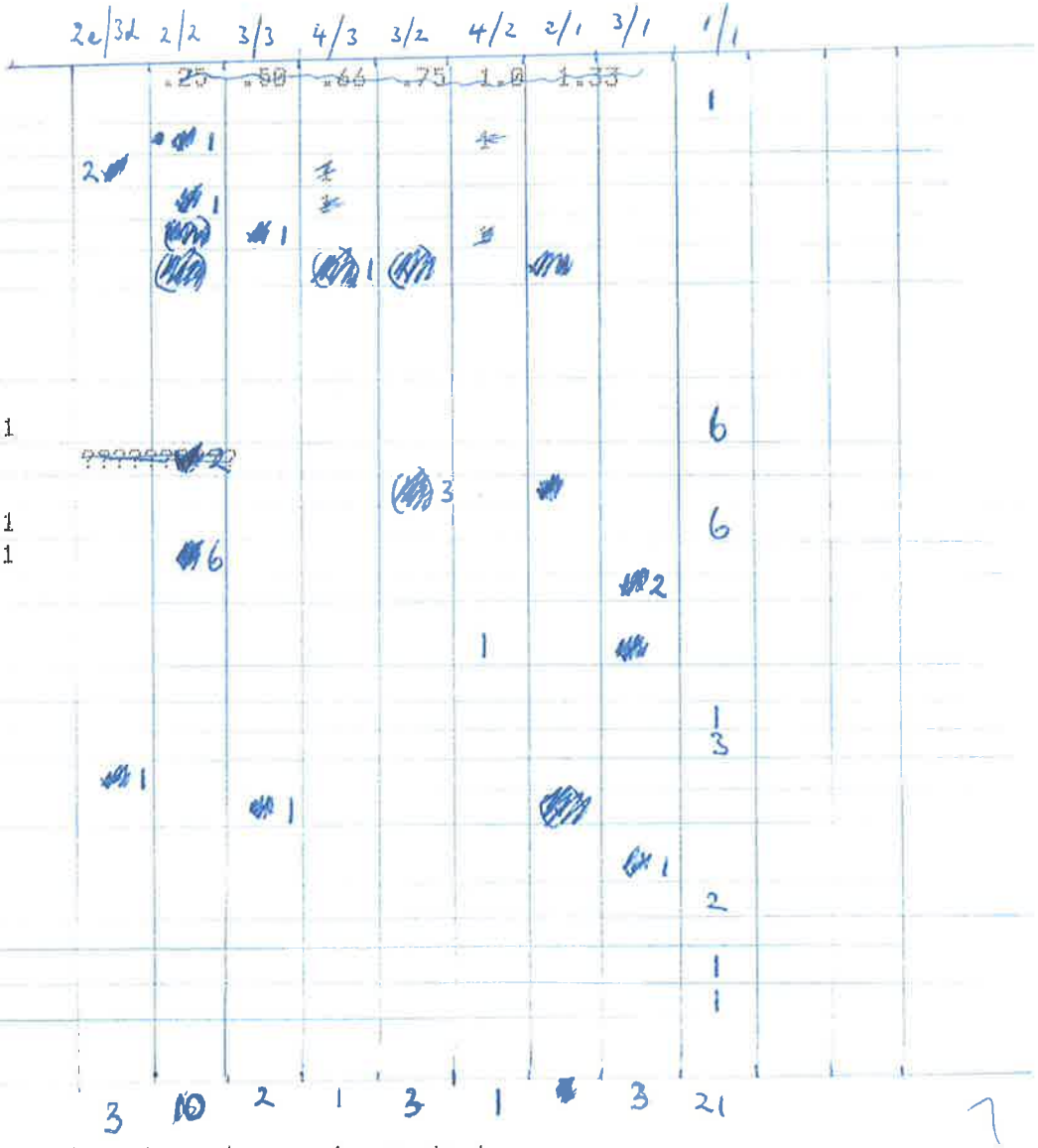
Quadrat is 2m x 2m square

Summary Info

i) Laying rates

0 0 0 1	1	
0 0 1 2	1	
0 1 1 2	11	
0 1 2 2	1	
0 1 2 3	1	
0 2 3 4	1	
1 0 0 0	1	
1 1 1 1	11	
1 1 2 2	111111	
1 1 2 3	11	
1 1 2 4	1	
1 2 2 2	111111	
1 2 3 3	111111	
1 4 4 4	11	
2 0 3 4	1	
2 2 2 2	1111	
2 2 2 3	1	
2 3 3 3	111	
2 3 3 4	1	
2 4 4 5	1	
- 1 1 4	1	
- 1 2 2	11	
- 2 2 2	1	
- 2 2 3	1	
- 2 3 3	11	

Total 51
non-nests not incl



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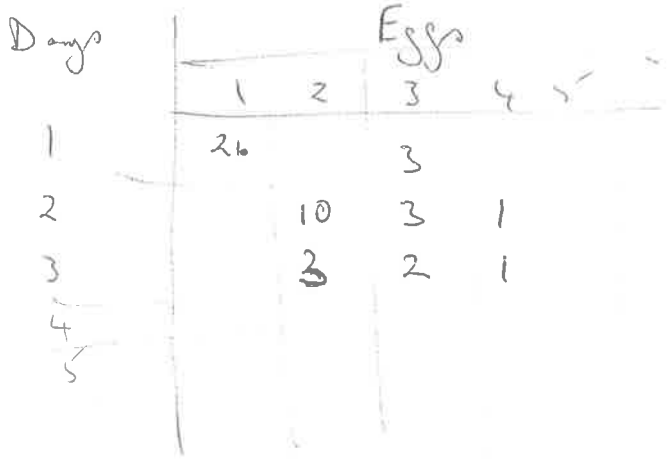
1e nests	29	18	5	3	
2e nests	12	22	27	23	
3e nests		4	14	16	
4e nests		3	3	7	
5e nests				1	

Eggs	53	86	113	130	
Eggs/nest	1.3	1.8	2.3	2.6	
diffs		0.5	0.5	0.3	
1e nests %	71	38	10	6	
2e nests %	29	47	55	46	
3e nests %		9	29	32	
4e nests %		6	6	14	
5e nests %				2	
Non-nests	4	4	5	3	5?
1e	3	2	5	3	
2e	1	1			
3e		1			
Eggs	5	7	5	3	
Tot "nests"	45	51	54	53	
Tot "nests"/m²	11.25	12.75	13.5	13.25	
Tot eggs	58	93	118	133	

Notes:

* There were no (few?) scrapes without eggs in Apr (need to re-examine slide to count empty scrapes? and recount non-nests?).
* Non-nests equals CDTM's egg "dumps"
* "Nests" is Nests + Non-nests.
* Counts above incl at least 1 buried egg (in non-nest). Need to revise?

Conclusions:



Eggs	53	86	113	130	
Eggs/nest	1.3	1.8	2.3	2.6	
1e nests %	71	38	10	6	
2e nests %	29	47	55	46	
3e nests %		9	29	32	
4e nests %		6	6	14	
5e nests %				2	
Non-nests	4	4	5	3	5?
1e	3	2	5	3	
2e	1	1			
3e		1			
Eggs	5	7	5	3	
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Conclusions:

Six undated hand-written pages by JL recording:

- **the number of eggs in each of 49 or 50 numbered nests (including some 'no nests') in 'Quadrat 5-8' on 4th, 5th, 6th, 7th April and 3rd May 1995 and in seven nests (a-d) starting 5th April 1995. It's apparent that hatching was prior to 3rd May.**
- **based on the above, the % of eggs on 7th April that had hatched as at 3rd May 1995;**
- **the minimum number of eggs that hatched;**
- **the number of eggs not hatched (most or all being dead), and**
- **the number of dead chicks (there being no live chicks in this quadrat) in each of the 49 or 50 numbered nests in 'Quadrat 5-8'.**

Quadrat 5-8

Nest No ~~42/42~~	4/4	5/4	6/4	7/4	3/5
1	2 ✓	3 ✓	3 ✓	4 ✓	fragments 100% hatch
2	1 ✓	1 ✓	2 ✓	2 ✓	" "
3	1 ✓	1 ✓	2 ✓	2 ✓	" "
4	1 ✓	2 ✓	3 ✓	3 ✓	1 egg + 1 dead chick
5	1 (+?)	2 ✓	2 ✓	2 ✓	~~1 egg (?)~~ 100% fragments
6	1 ✓	4 ✓	4 ✓	4 ✓	fragments 100% hatch
7	1 ✓	1 ✓	1 ✓	1 ✓	1 whole egg ½ buried 1 broken egg (?)
"Nest" 8	1 ✓	0 ✓	1 ✓	0 ✓	1 egg + fragments
9	1 ✓	2 ✓	2 ✓	2 ✓	fragments 100% hatch
10	2 ✓	3 ✓	3 ✓	3 ~~3~~ (+3)	" "
11	1 ✓	1 ✓	2 ✓	4 ✓	1 egg, 1 dead chick + fragments
"nest" 12	1 (+?)	1 ✓	1 ✓	1 ✓	no fragments – 0 hatch?
13	1 ✓	1 ✓	2 ✓	3 ✓	fragment, 100% hatch
14	1 ✓	2 ✓	3 ✓	3 ✓	" "
15	1 ✓	2 ✓	3 ✓	3 ✓	" "
16	1 ✓	2 ✓	2 ✓	3 ✓	" "
17	2 ✓	2 ✓	2 ✓	2 ✓	" "
18	1 ✓	2 ✓	3 ✓	3 ✓	fragments + 1 dead chick ✓
19	1 ✓	0 ✓	0 ✓	0 ✓	no fragments
20	2 ✓	3 ✓	3 ✓	3 ✓	~~eggs~~ 100% h
21	1 ✓	2 ✓	2 ✓✓	2 ✓	100% ~~eggs~~ fragments ✓
22	1 ✓	1 ✓	1 ✓✓	1 ✓	fragments, 100% h ✓
23	1 ✓	1 ✓	2 ✓✓	2 ✓	1 dead chick ~~egg [illegible]~~
24	2 ✓	2 ✓	2 ✓✓	2 ✓	fragments, 100% h ✓
25	2 ✓	2 ✓	2 ✓✓	2 ✓	" "
26	1 ✓	1 ✓	2 ✓✓	2 ✓	" "
27	1 ✓	1 ✓	2 ✓	2 ✓	" "
28	1 ✓	1 ✓	2 ✓	2 ✓	4 eggs (3 partly buried)

Quadrat 5-8

Nos 5 N	4/4	5/4	6/4	7/4	3/5
29	2 ✓	4 *✓	4 ✓	5 ✓	+ frags 2 eggs
30	1 ✓	4 ✓	4 ✓	4 ✓	frags, 100% h ✓
31	2 ✓	2 ✓✓	2 ✓✓	3 ✓✓	" " ✓
32	1 ✓	2 ✓	2 ✓	2 ✓	" " ✓
33	1 ✓	2 ✓✓	3 ✓✓	3 ✓✓	" " ✓
34	1 ✓	2 ✓	3 ✓	3 ✓	" + 1 egg ✓
35	1 ✓	2 ✓✓	2 ✓✓	2 ✓✓	1 dead chick ✓
36	no nest 1 ✓	2 ✓✓	1 buried ✓	1 buried ✓	1 buried ✓ ✓
37	2 ✓	2 ✓	2 ✓	2 ✓	1 egg + frags ✓
38	1 ✓	1 ✓	2 ✓	3 ✓	1 egg + "
39	2 ✓	3 ✓✓	3 ✓✓	3 ✓✓	frags, 100% h ✓✓
40	2 ✓	0 ✓	3 ✓	4 ✓	1 half-buried egg. 75% h. ✓
41	0 ✓	1 ✓✓	2 ✓✓	2 ✓✓	frags, 100% h ✓
42	0 ✓	2 ✓✓	3 ✓✓	4 ✓✓	" " ✓
43	0 ✓	1 ✓✓	1 ✓✓	2 ✓✓	" " ✓
44	0 ✓	1 ✓	2 ✓	2 ✓	" 100% h
45	? ✓	1 ✓	2 ✓	2 ✓	" "
46	0 ✓	1 ✓	2 ✓	3 ✓	" "
47	no nest 0 ✓	no nest 1 ✓	no nest 1 ✓	no nest 0 ✓	no nests 0 eggs no frags
48	0	0	1 ✓	2 ✓	frags, 100% ✓
49	0	0	0	1 ✓	frags 1 dead chick
50					
a [illegible]	—	2	2	2	frags, 100%
b [illegible]	—	1	2	2	" "
c [illegible]	—	2	2	3	" "
d [illegible]	—	non-nest 3	non nest 1 (2?)	non nest 1 (2?)	non nest 2 egg + frags
e [illegible]	—	1	1	4	frags, 100%
f	—	2	3	3	" "
g	—	2	3	3	1 egg + frags

one or 2 non nests?

3 from ground nearby?

* hatched means

Quadrats 5 – 8

Nest No	(3/5) Description of contents	Eggs on 7/4	% Eggs (on 7/4) hatched (3/5)	No. Eggs hatched	No. Eggs not hatched	No. Dead Chicks
1	4	4	100%	4	0	0
2	see	2	↓	2	0	0
3	other	2	↓	2	0	0
4	sheet	3	33%*	1	1	1
5		2	100%	2	0	0
6		4	↓	4	0	0
7		1	0%	0	2	0
8		0	0%	0	1	0
9		2	100%	2	0	0
10		3 (4?)	↓	3 (4?)	0	0
11		4	*50%	2	1	1
12		1	0 or 100%	0 or 1	0	0
13		3	100%	3	0	0
14		3	↓	3	0	0
15		3	↓	3	0	0
16		2	↓	2	0	0
17		2	↓	2	0	0
18		3	*66%	1	0	1
19		0	0%	0	0	0
20		3	100%	3	0	0
21		2	↓	2	0	0
22		1	↓	1	0	0
23		2	*50%	1	0	1
24		2	100%	2	0	0
25		2	↓	2	0	0
26		2	↓	2	0	0
27		2	↓	2	0	0
28		2	0%	0	4	0
Sub Totals:	28				9	4

must be all dead

these were not live chicks in this quadrat

(min)

* "hatched" means?

Quadrats 5 – 8 contd

all (most?) dead → | there were no live chicks = the product.

Nest Nº	Description of contents (3/5)	Eggs on 7/4	% eggs (on 7/4) * hatched (3/5)	Nº of Eggs hatched	* Nº of Eggs not hatched	Nº of Dead Chicks
29		5	~~[illegible]~~ 60%	3	2	0
30		4	100%	4	0	0
31		3	↓	3	0	0
32		2	↓	2	0	0
33		3	↓	3	0	0
34		3	66%	2	1	0
35		2	* 50%	1	0	1 *
36		1 buried	0%	0	1	0
37		2	50%	1	1	0
38		3	~~[illegible]~~ 66%	2	1	0
39		3	100%	3	0	0
40		4	~~[illegible]~~ 75%	3	1	0
41		2	100%	2	0	0
42		4	↓	4	0	0
43		2	↓	2	0	0
44		2	↓	2	0	0
45	|	2	↓	2	0	0
46		3	↓	3	0	0
47		0	0%	0	0	0
48		2	100%	2	0	0
49		1	* 50%	1	0	1 *
~~4~~		~~?~~				
a		2	100%	2	0	0
b		2	↓	2	0	0
c		3	↓	3	0	0
d		?	0%?	0?	2	0
e		4	100%	4	0	0
f		3	↓	3	0	0
g		3	66%	2	1	0
SubTotals					10	2
carried forward	28				9	4
TOTALS					19	6

Notes re Quadrat 5–8

1. * Nest 29 on 5/4/95 incl. one v. different egg.

2. Going by the 7/4 and 3/5 photos, of the 49 nests identified from the photos (from N side only), a minimum of ~~27~~ [illegible] had a total hatch (max figure was 32)

The total number of eggs hatched from these nests were:

[illegible] nests	[illegible] nests
~~[illegible]~~	4
42242 (3 or 4) 333	[illegible] 21332
2212222432 3[illegible]	(4 / ")
3242232 ✓	
68 (or 70) eggs	80 (or 81) eggs

[illegible] of which contained at least one egg on 7/4

3. No new nests appeared in the /5 photo (compared with 7/4 photo)

Quadrats 5 – 8
contd

Summaries

- No nests — when
- No eggs, average, % etc. (freq. distribution)
- successful nests
- eggs hatched
- eggs → live chicks (departed)

* Look at Chris's approach.

- pipping? addled? etc.

- nest density in quadrat.

* If chick is dead in nest, did egg "hatch successfully?"

" all eggs except .. were in recognisable 'scrapes' "

(nest d under bush – 2 nests? no scrape
see others in notes.)

" no large egg "clumps" in this quadrat "

Hand-written tabulations by JL (1st page headed 'From JL's photos of Ballard Colony on 15/3/95') in which JL records the number of nests with 1 egg, 2 eggs, etc., in each of 5 quadrats (ABHG, BCIH, CDJI, DEKJ, EFLK; each photographed in two sections) and the number of 'Extra' eggs and nests (i.e. one nest with 11 eggs and 2 nests with 7 eggs) and totals these. Each quadrat section is matched to the corresponding photo number.

Percentages are calculated. JL calculates (a few assumptions are made) that '... most (77%) of nests would have full clutch on 17/3' and '... most clutches would hatch on 17/3 + 21 days = 7th April'. Nest density in these five quadrats is calculated to be 8.5 nests/m^2 with 4 quadrats ranging 9.4 to 10.9 nests/m^2 and one (at 'periphery' of nesting area) at 2.9 nests/m^2.

JL notes that 'Clive Minton has photos of 10 more quadrats'. CDTM later (in 1995?) sent these to JL, who subsequently (in 2013) scanned (digitised) them and still (11/02/2014) has them.

Check: were the nests with 7 & 11 eggs really nests or were they 'dumps'?

Note that each of these five quadrats (all of which were pegged with white-topped wooden pegs) measured 5 metres x 2.5 metres.

From JL's plates of Ballard Colony on 15/3/95

Exam

Quadrat	J.L's Slide	Nests With 1 egg	2 eggs	3 eggs	4 eggs	5 eggs		
A B I + G	18	27	14	6	1	0		—
	19	27	30	10	1	2		
Nests in quadrat		54	44	16	2	2	Totals	118 nests
Eggs in quadrat		54	88	48	8	10		208 eggs
B C E H	20	~~16~~ 9	~~32~~ 20	~~15~~ 13	~~9~~ 4	0		
	21	9	20	13	4	1		
Nests in quadrat		25	52	28	13	1	Totals	119 nests
Eggs in quadrat		25	104	84	52	5		270 eggs
C D I J	22	15	29	22	10	1	11	
	23	22	23	9	2	1	1	
Nests in quadrat		37	52	31	12	2	2	Totals: 136 nests
Eggs in quadrat		37	104	93	48	10	18	310 eggs
D E K J	24	50	17	4	1	1	7	
	25	37	8	3	0	0	—	
Nests in Quadrat		87	25	7	1	1	1	Totals 122 nests
Eggs in quadrat		87	50	21	4	5	7	173 eggs
E F L K	26	23	3	0	0	0		
	27	10	0	0	0	0		
Nests in Quadrat		33	3	0	0	0		Totals 36 nests
Eggs in quadrat		33	6	0	0	0		39 eggs

Note that Clive Minton has plots of 10 more quadrats!

J.C.
From Photos of 15/3/95
of Bullard

NESTS

Photos	QUADRAT ↓	Nests with 1 egg	2 eggs	3 eggs	4 eggs	5 eggs	7 eggs	11 eggs	Totals
18+19	ABHG	54	44	16	2	2	0	0	118
20+21	BCIH	25	52	28	13	1	0	0	119
22+23	CDJI	37	52	31	12	2	1	1	136
24+25	DEKJ	87	25	7	1	1	1	0	122
26+27	EFLK	33	3	0	0	0	0	0	36
		236	176	82	28	6	2	1	531
		44%	33%	15%	5%	1%	>1%	>1%	

Date was 15/3/95 and laying rate is 1/day
If full clutch is 3-4 eggs, then most (77%) of nests would have full clutch on 17/3.
If incubation period is 21 days (from last egg), then most clutches would hatch on 17/3 + 21 days = ~~7th~~ ~~8~~ April.

Density — Total 531 nests with eggs in 5×5×2.5 m² = 8.5 nests/m²

Each Quadrat

118 nests with eggs	= 5×2.5 m²	= 9.4	nests/m²
119	"	= 9.5	"
136	"	= 10.9	"
122	"	= 9.8	"
36	"	= 2.9	"

norm. ↑ periphery

D... line
Neil Gibson : 160

J.C.
From Photos of 15/3/95
of Breland

NESTS

Photos	QUADRAT ↓	Nests with 1 egg	2 eggs	3 eggs	4 eggs	5 eggs	7 eggs	11 eggs	Totals
18+19	ABHG	54	44	16	2	2	0	0	118
20+21	BCIH	25	52	28	13	1	0	0	119
22+23	CDJI	37	52	31	12	2	1	1	136
24+25	DEKJ	87	25	7	1	1	1	0	122
26+27	EFLK	33	3	0	0	0	0	0	36
		236	176	82	28	6	2	1	Total 531
		44%	33%	15%	5%	1%	>1%	>1%	

Date was 15/3/95 and laying rate is 1/day
If full clutch is 3-4 eggs, then most (77%) of nests would have full clutch on 17/3.
If incubation period is 21 days (from last egg), then most clutches would hatch on 17/3 + 21 days = 7th April.

Density — Total 531 nests with eggs in 5×5×2.5 m² = 8.5 nests/m²

Each Quadrat
118 nests with eggs = 5×2.5 m² = 9.4 nests/m²
119 = 9.5 ..
136 = 10.9 ..
122 = 9.8 ..
36 = 2.9 ..

norm.

periphery

Dorset Live
Neil Gibson : 160

Several pages, mostly prepared on 18-19/2/2014, by JL, describing the butcher's paper projections of photos of hatching quadrats ABHG, BCIH, CDJI, DEKJ, EFLK on 1st colony (Ballard) on 15/3/1995; laying quadrat ABCD on 1st colony (Ballard) daily from 31/3 to 6/4/1995, and laying quadrat '5-8' on 2nd colony (Ballard) daily from 4/4 to 7/4/1995 and on 3/5/1995].

Consider scanning (digitising) the butcher's paper projections (each measures 61x91cm) andd adding A4 prints to this RMCR.

The four quadrats named below (incorrectly) should no doubt be: ABHG, BCIH, CDJI, DEKJ, EFLK.

JL 2/2014.

Photos: 3624-25, 3626-27, 3628-29, 3630-31, 3632-33 ← (all taken by JL)

Photo Frames: 18/19, 20/21, 22/23, 24/25, 26/27

A total of 15 hatching quadrats were established on the 1st colony (Lake Ballard) on 15/3/1995. JL photographed 5 of these and CM photo'd 10.

From butchers paper
Need checking.
18/2/14

(1990s)

Quadrat	Photo	Nests	Eggs	Nests	Eggs
~~ABHG~~	3624	48	~~77~~	118	199
	3625	~~70~~	~~122~~		
~~BCIH~~	3626	72	161	119	263
	3627	47	102		
~~CDJI~~	3628	78	195	134	310
	3629	58	115		
~~DEKJ~~	3630	74	112	128	174
	3631	48	62		
~~EFLK~~	3632	26	29	36	39
	3633	10	10		

= original writing

Photos (28 in total) of Base nests at Lake Ballard, 15/3/95.

Quadrats ABHC, ~~BCIH~~, ~~CDJF~~, ~~DEKJ~~ & EFLK (J.L.'s photos)

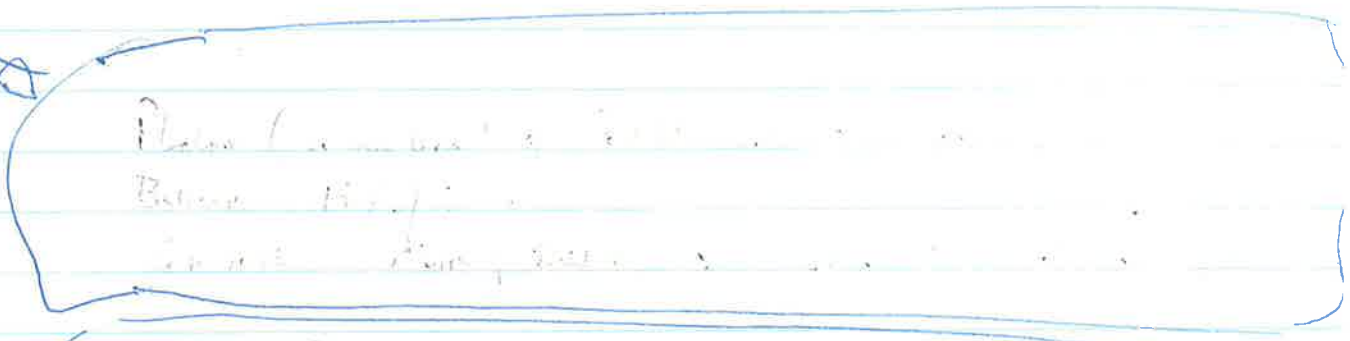
Very difficult to discern writing above. Therefore might be incorrect

My re-writing of the original writing.

02 April 2012

(1990s)

Orginal writing



Photos (28 mm lens) of BASE nests at Lake Ballard, 15/3/95.

Quadrats ABHC, BCIH, CDJF, DEKJ & CFLK (J.L.S photos)

Very difficult to discern writing above. Therefore might be incorrect

My re-writing of the orginal writing

02 April 2012

19/2/2014

Order (by date)

Nest Monitoring Photos

Photos (as described on butcher's paper projections)

7	Quadrat ABCD	6/4/95	Box 10 : 21
6	"	5/4/95	Box 8 : 33
5	"	4/4/95	Box 8 : 28
4	"	3/4/95	Box 5 : 31
3	"	2/4/95	Box 2 : 23
2	"	1/4/95	Box 4 : 29
1	"	31/3/95	Box 4 : 25

* Individual nests have not been numbered.
* Individual nest contents have been recorded (no. of eggs)

This was a "laying quadrat" on 1st Colony of Lake Ballard.

These "butcher's paper" sheets are 61 × 91cm.

19/2/2014

Nest Monday Rookery

Order (by date)

4.	Quadrat 5–8 :	7/4/95	Box 9 :
3.	" " :	6/4/95	Box 10 :
2.	" "	5/4/95	Box 7 :
1.		4/4/95	Box - - -
5(b)		3/5/95	Box , Slide 6 , from S side .
4(b)		7/4/95	Box 9 , , from S side .
3(b)		6/4/95	Box 10 , , from S side .
2(b)		5/4/95	Box 7 , , from S side .
5.		3/5/95	Box , Slide 5 ,

- Each nest has been numbered (same no. + element of date if like)
- Individual nest contents have been recorded (no. of eggs)

This was a "laying quadrat" on [redacted] 2nd Colony of Lake Bellard.

These "butcher's paper" sheets are 61 × 91 cm.

All of the monitoring photos ('thumbnail prints') that were taken (by JL & CDTM) of the hatching and laying quadrats on the 1st and 2nd nesting colonies on Lake Ballard. The earliest of these photos were taken on 15/03/1995 and the last on 04/05/1995.

***Some more-general photos of the quadrat areas are also printed here.**

All printed 16/3/2014

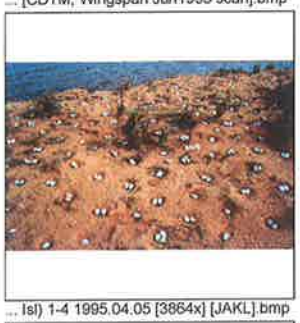

... [CDTM, Wingspan Jun1995 scan].bmp


... [CDTM, Wingspan Jun1995 scan].bmp


... lsl) 1-4 1995.04.04 [3829x] [JAKL].bmp


... lsl) 1-4 1995.04.04 [3829y] [JAKL].bmp


...d lsl) 1-4 1995.04.04 [3829] [JAKL].bmp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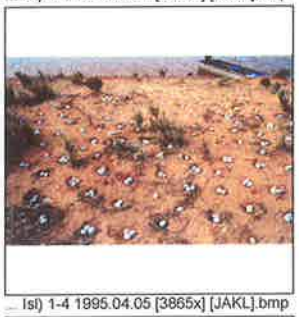
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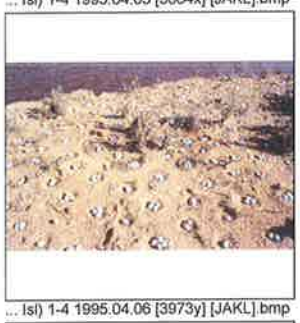
... lsl) 1-4 1995.04.05 [3865y] [JAKL].bmp


... lsl) 1-4 1995.04.06 [3973x] [JAKL].bmp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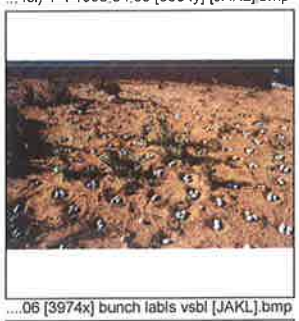
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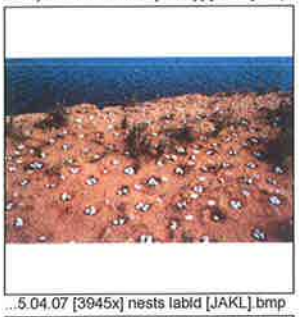
....06 [3974y] bunch labls vsbl [JAKL].bmp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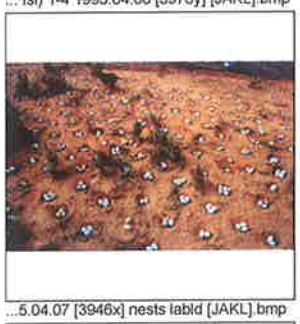
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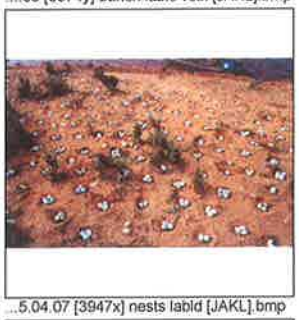
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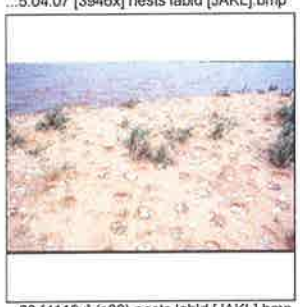
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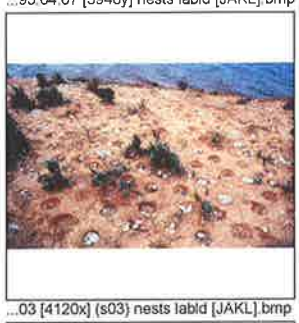
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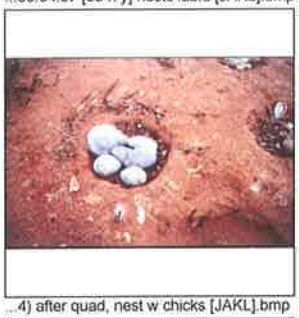
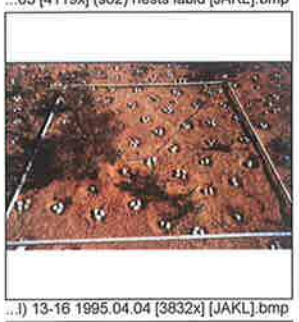
...03 [4120y] (s03) nests labld [JAKL].bmp


...4) after quad, nest w chicks [JAKL].bmp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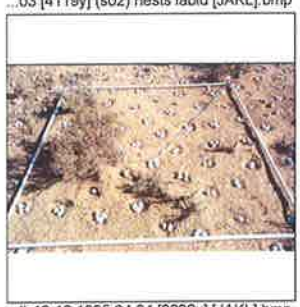
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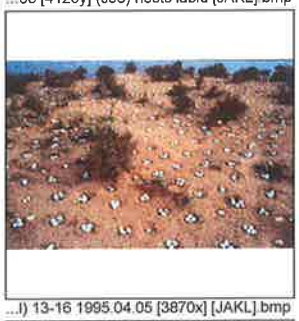
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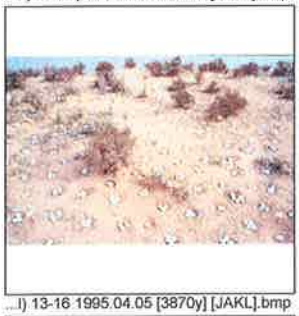
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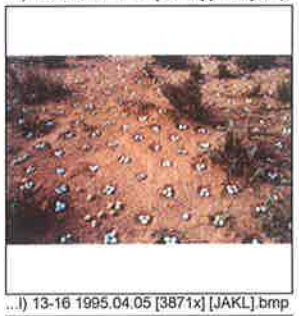
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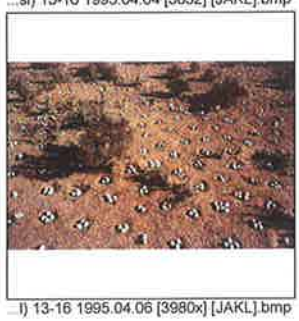
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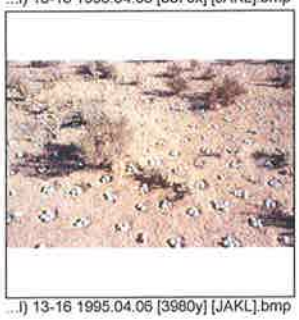
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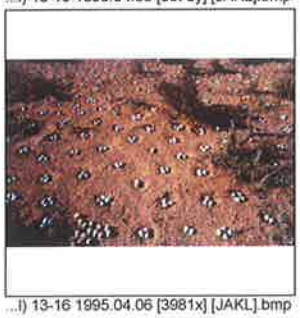
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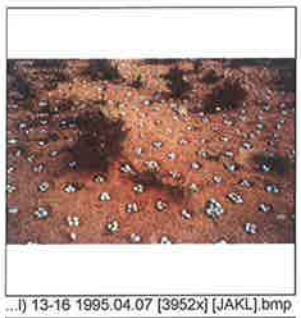
Pgs 2.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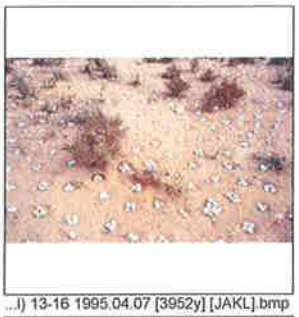
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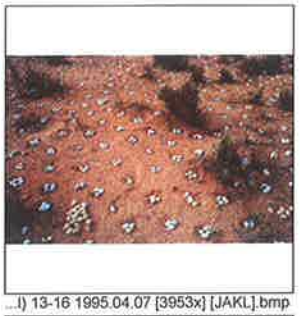
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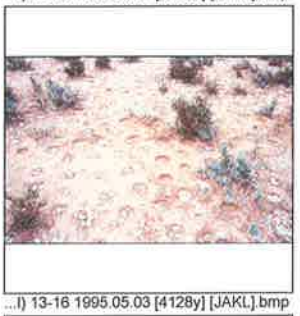
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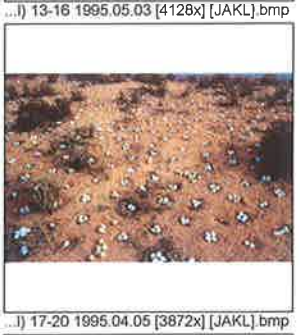
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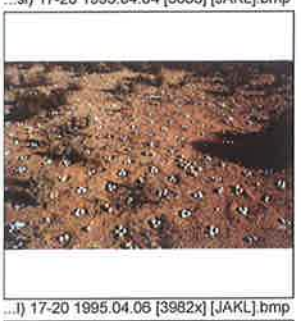
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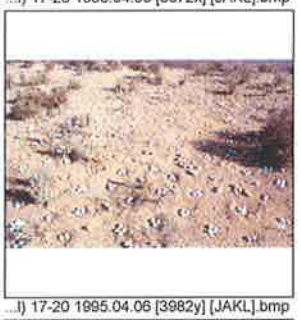
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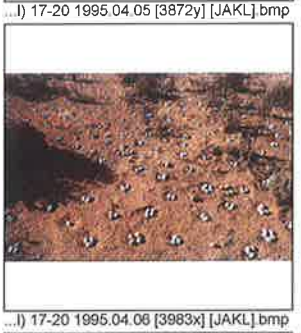
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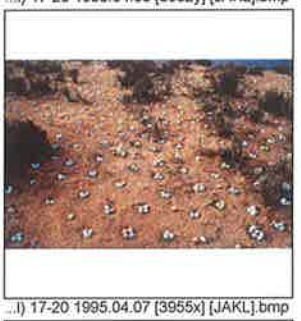
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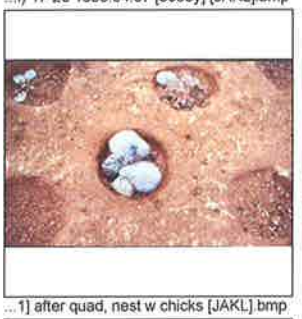
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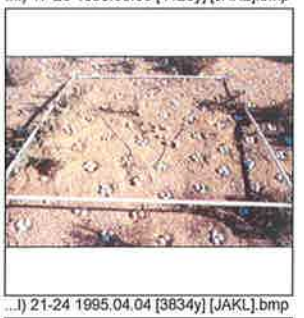
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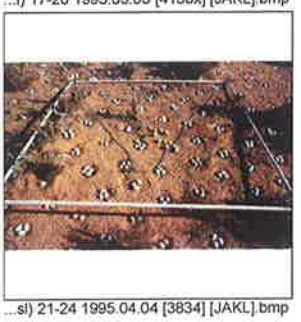
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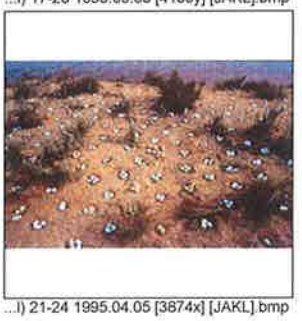
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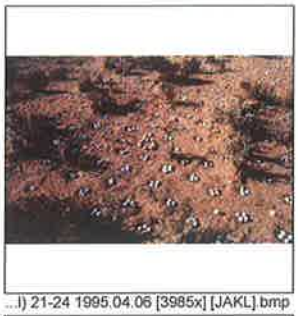
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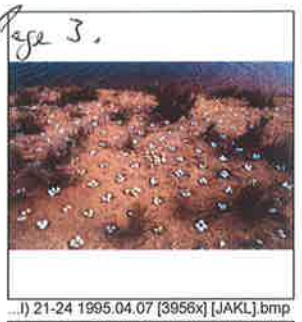
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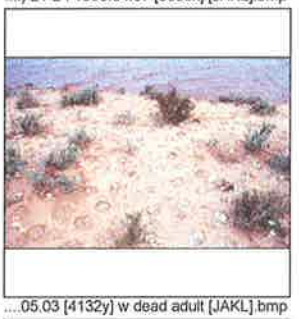
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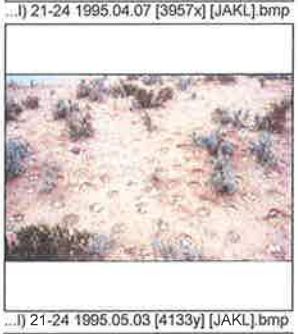
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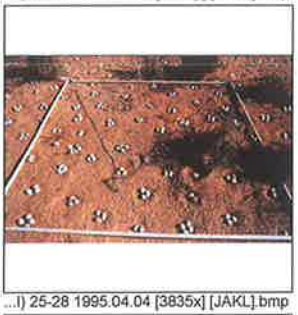
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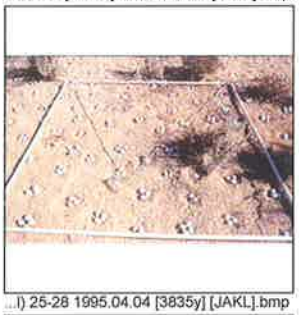
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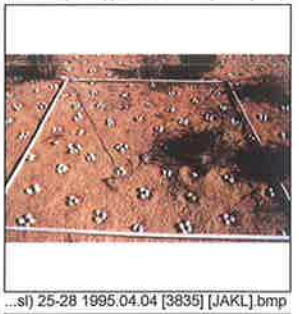
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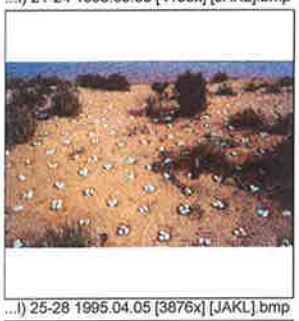
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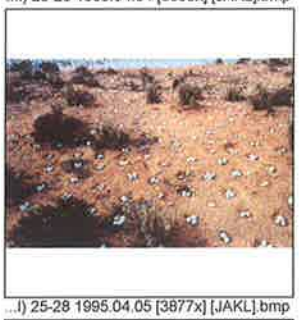
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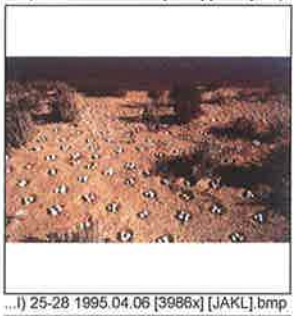
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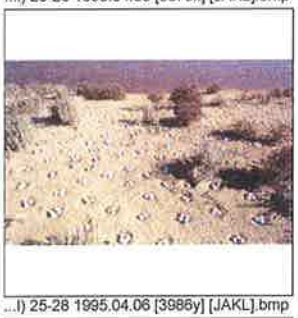
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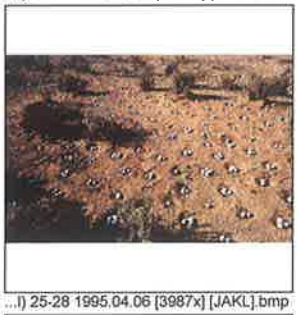
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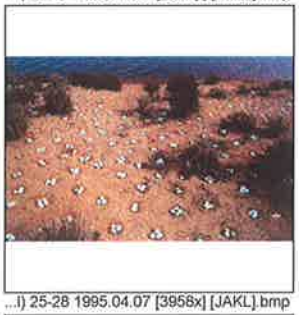
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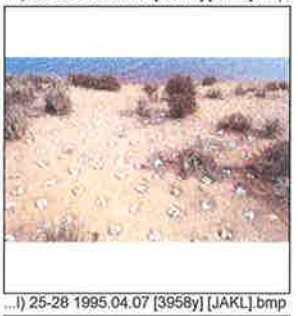
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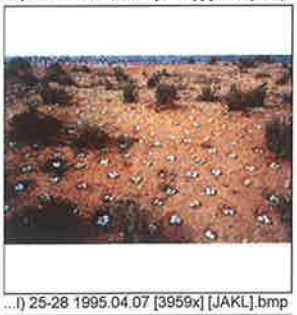
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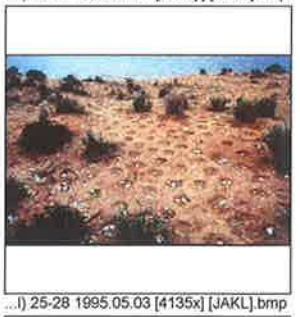
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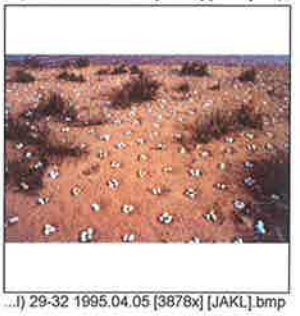
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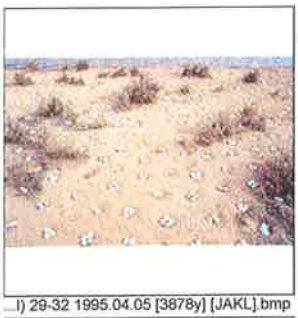
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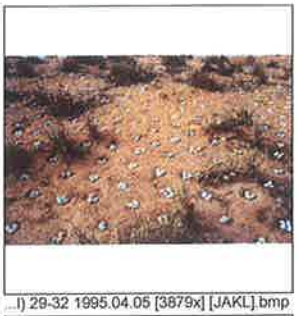
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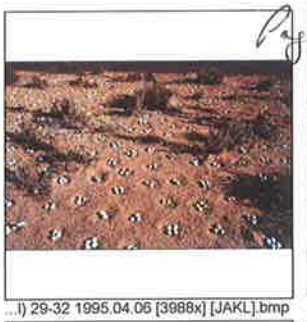
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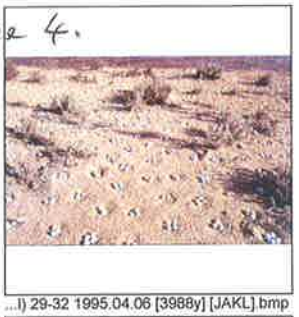
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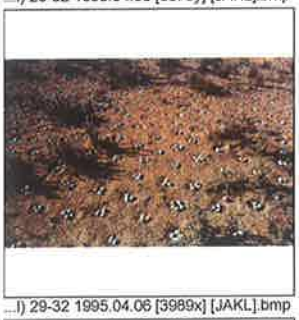
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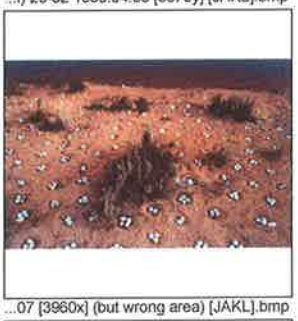
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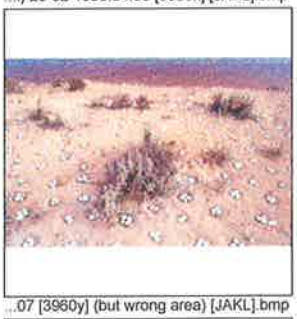
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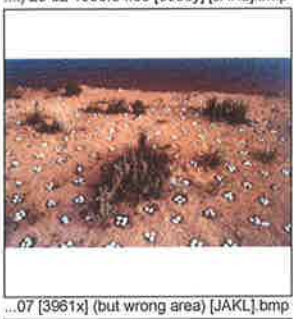
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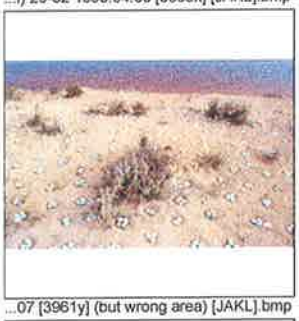
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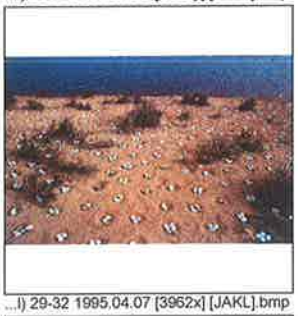
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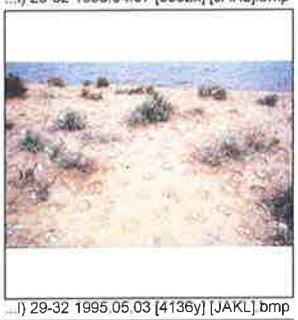
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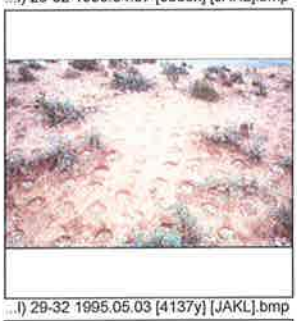
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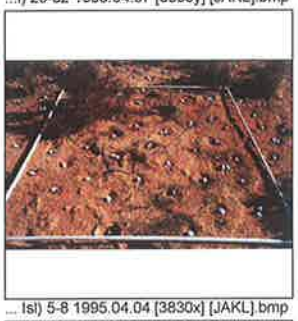
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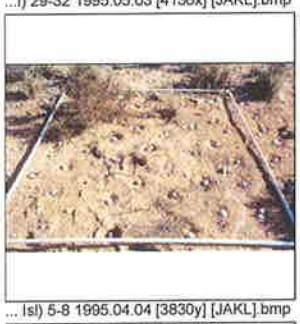
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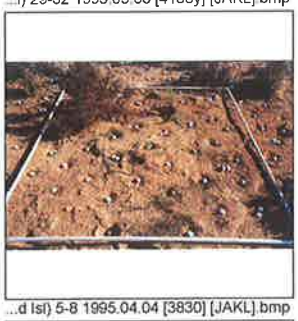
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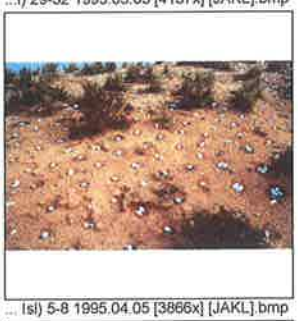
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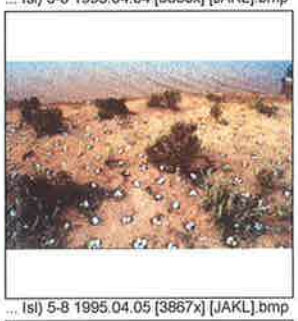
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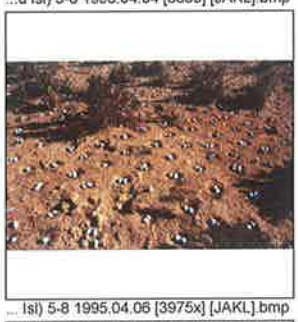
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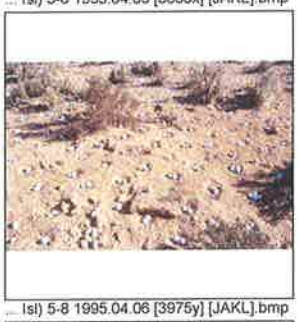
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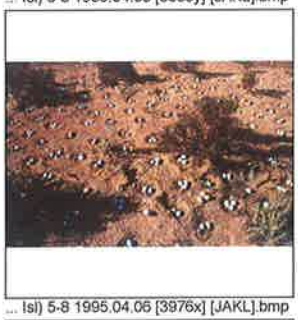
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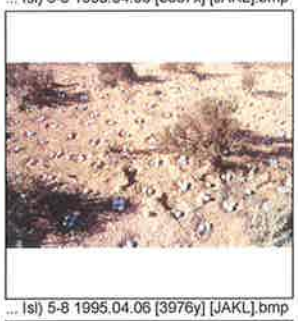
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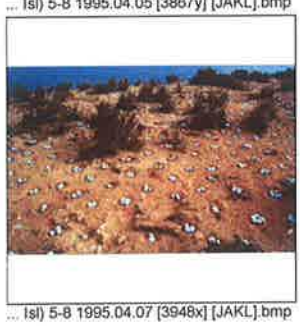
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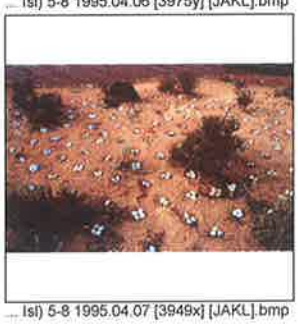
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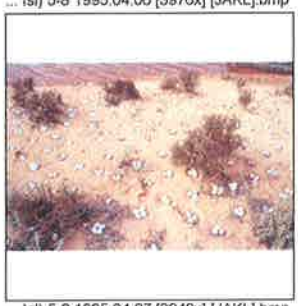
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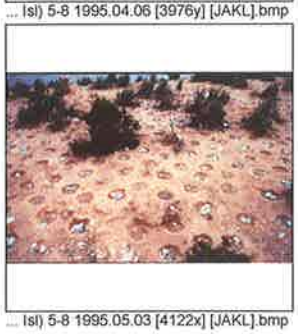
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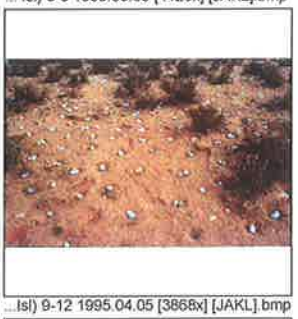
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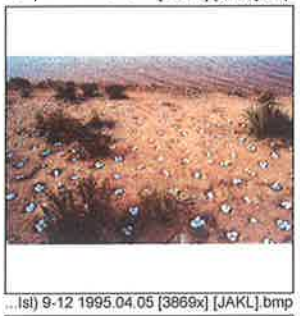
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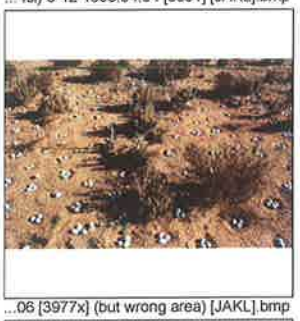
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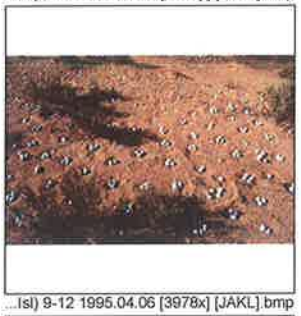
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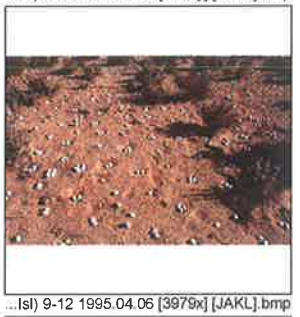
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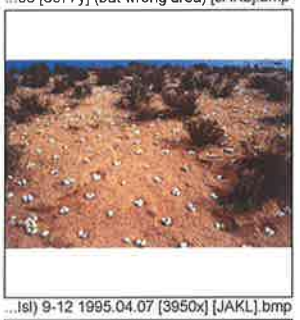
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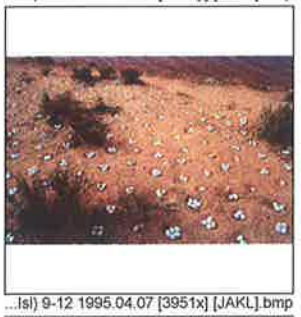
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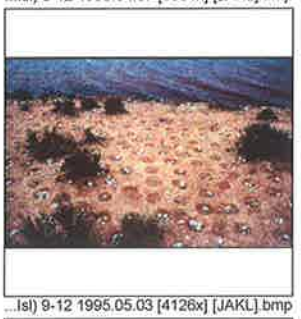
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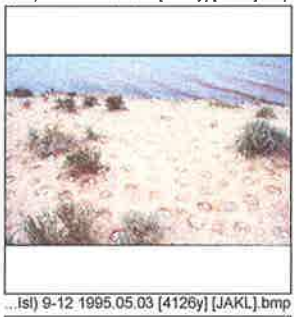
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...l) QRST 1995.04.04 [3837x] [JAKL].bmp


...l) QRST 1995.04.04 [3837y] [JAKL].bmp


...l) QRST 1995.04.05 [3880x] [JAKL].bmp


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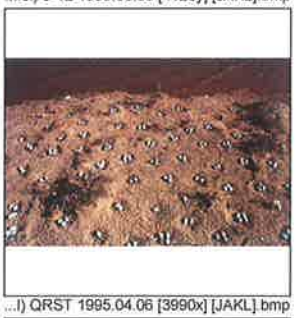
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...l) QRST 1995.04.06 [3990y] [JAKL].bmp


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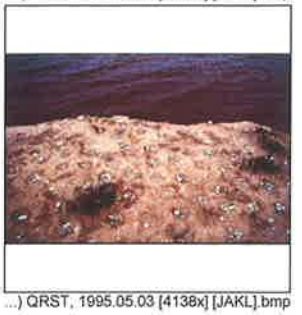
...l) QRST 1995.04.07 [3964y] [JAKL].bmp


...l) QRST 1995.05.03 [4138y] [JAKL].bmp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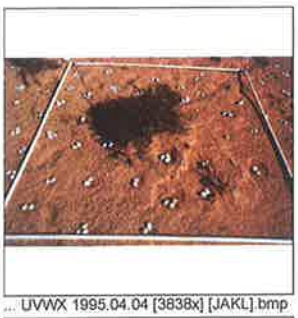
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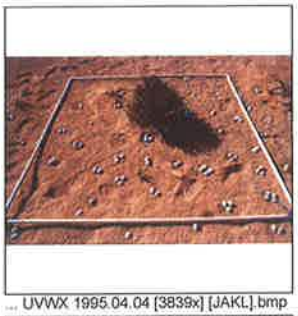
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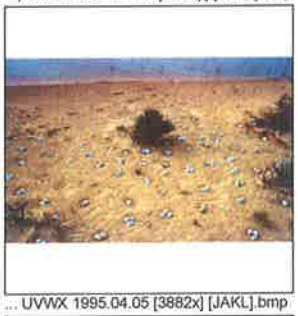
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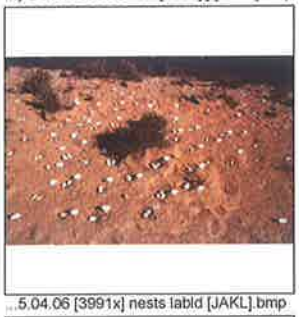
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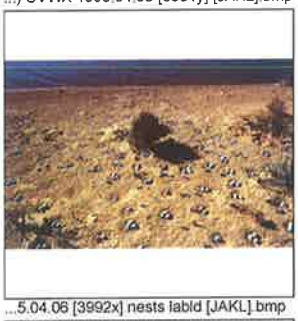
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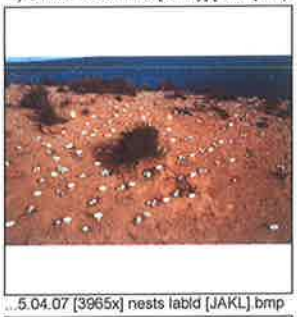
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...95.04.07 [3966y] nests labld [JAKL].bmp


...5.05.03 [4139x] nests labld [JAKL].bmp


...95.05.03 [4139y] nests labld [JAKL].bmp


...5.05.03 [4140x] nests labld [JAKL].bmp


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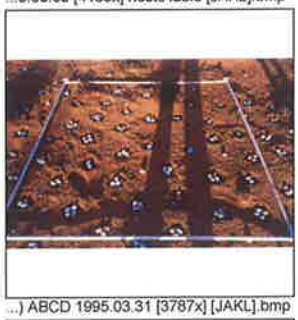
...1] after quad, nest w chicks [JAKL].bmp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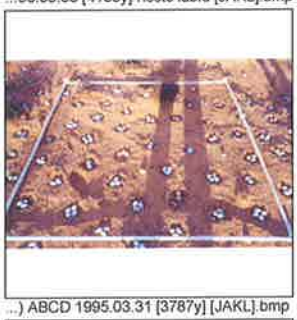
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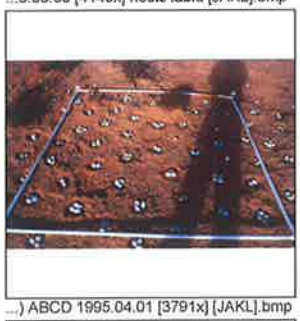
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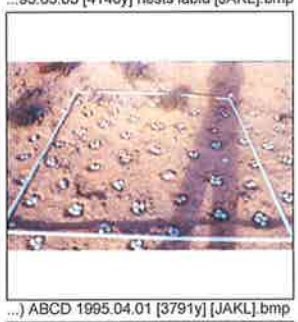
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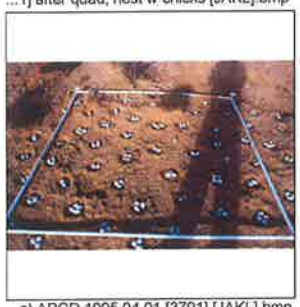
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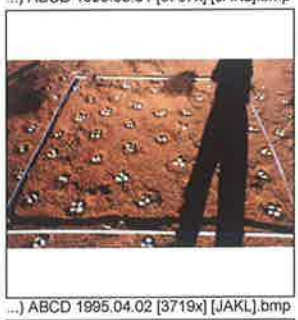
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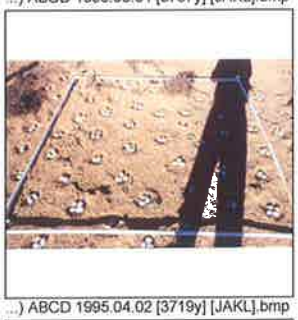
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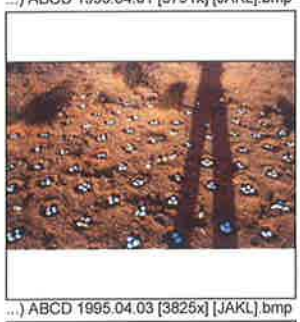
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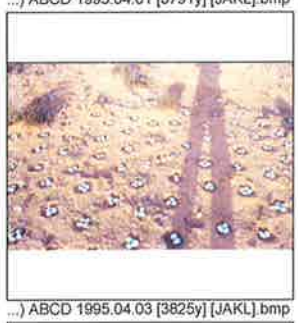
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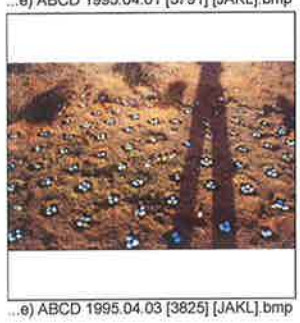
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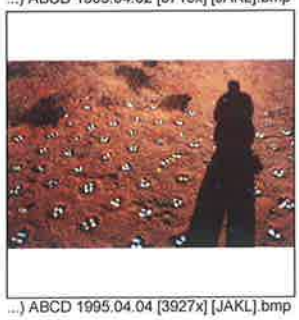
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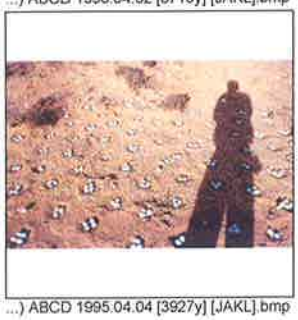
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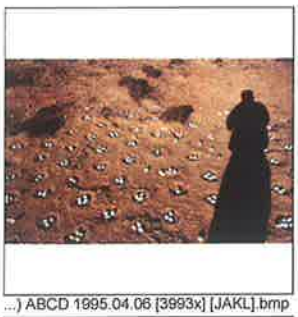
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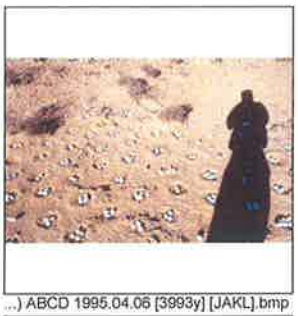
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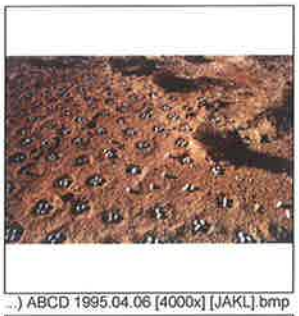
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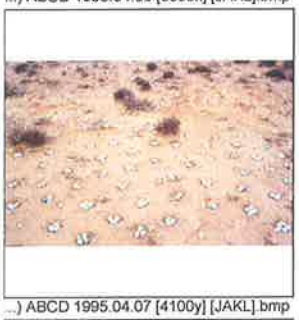
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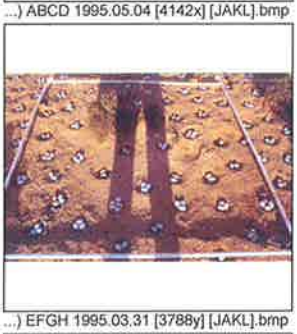
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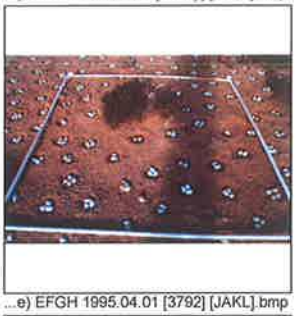
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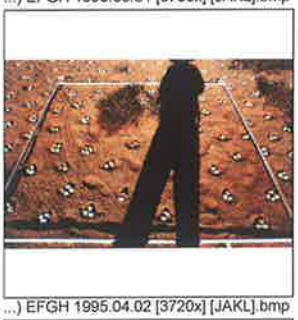
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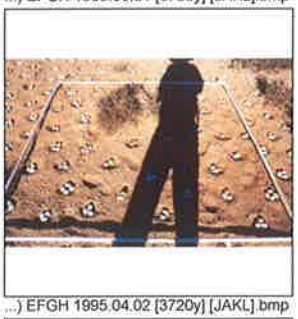
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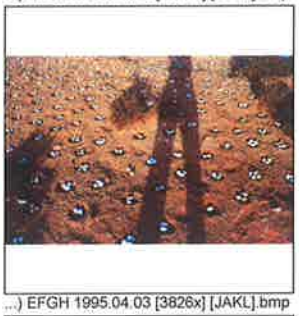
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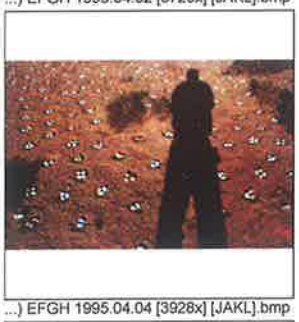
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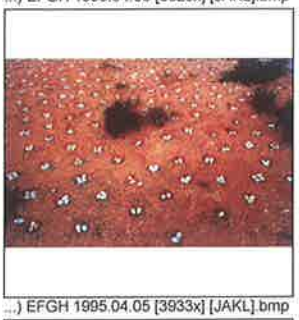
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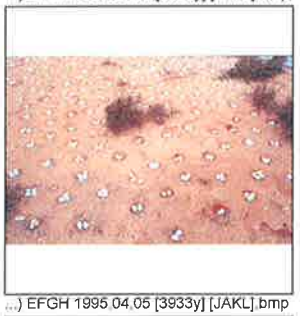
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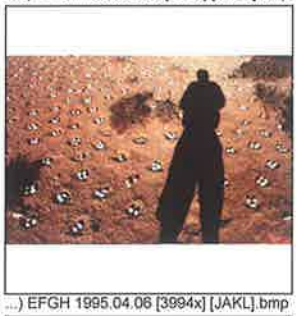
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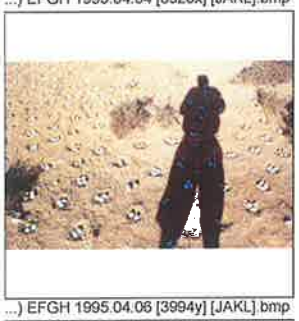
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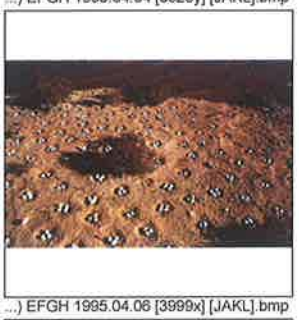
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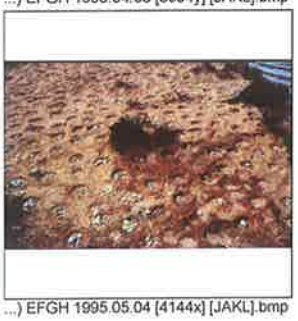
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...te) IJKL 1995.03.31 [3789x] [JAKL].bmp

Page 8.


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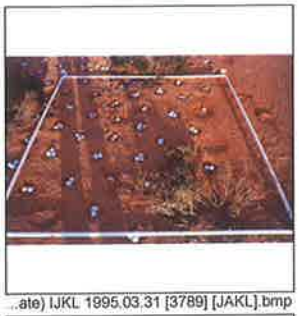
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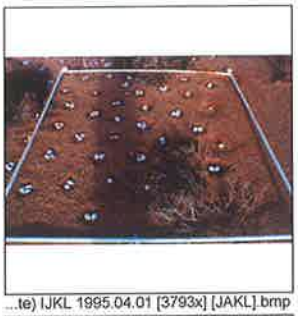
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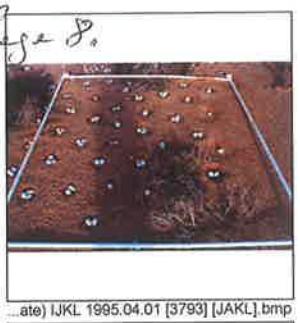
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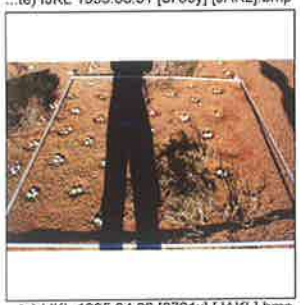
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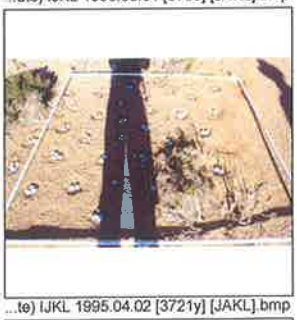
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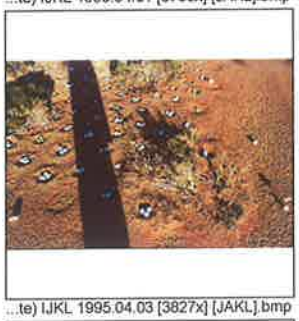
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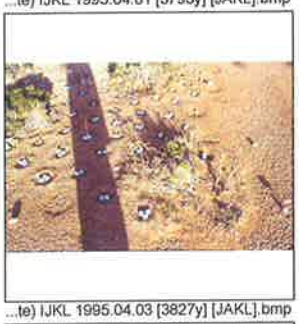
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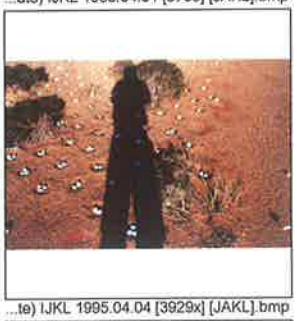
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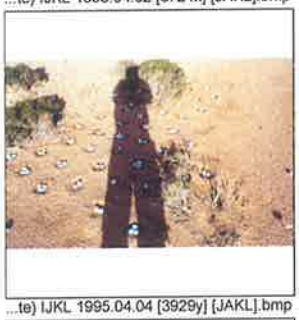
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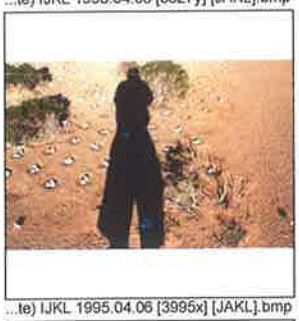
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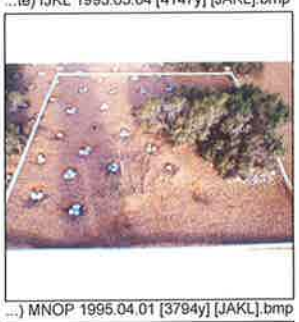
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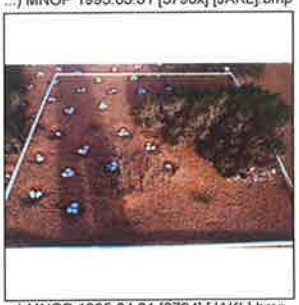
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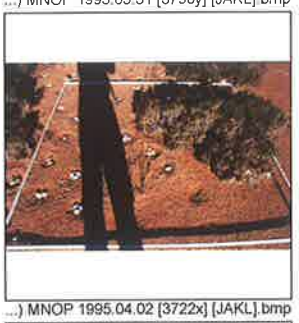
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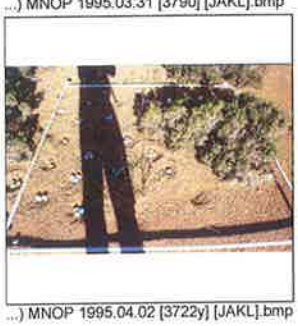
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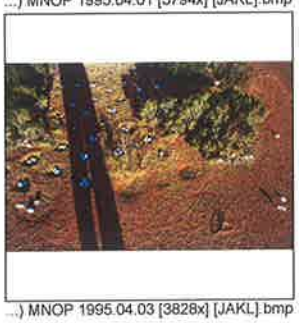
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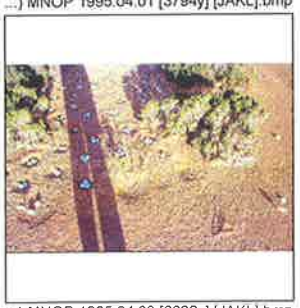
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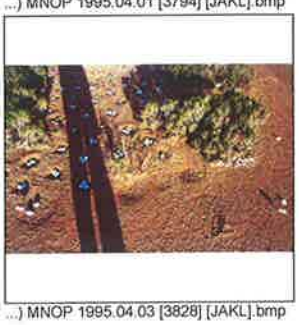
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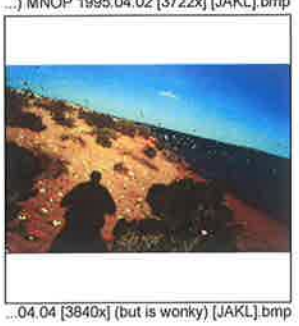
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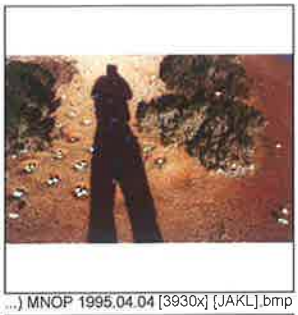
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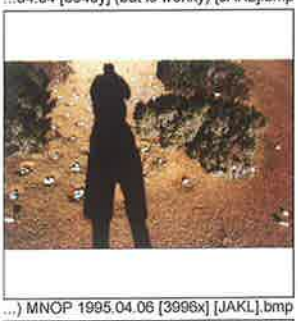
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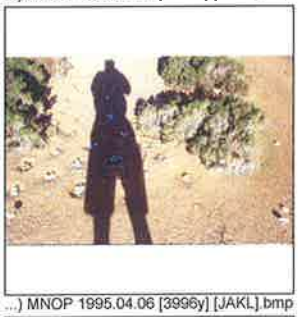
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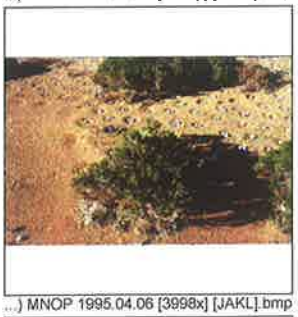
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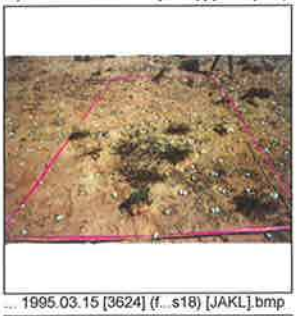
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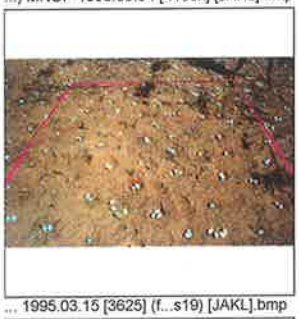
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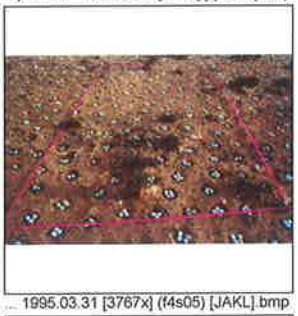
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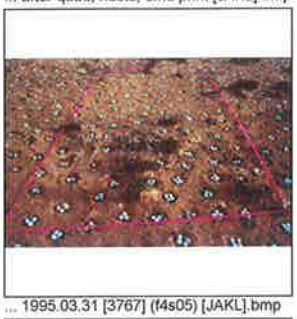
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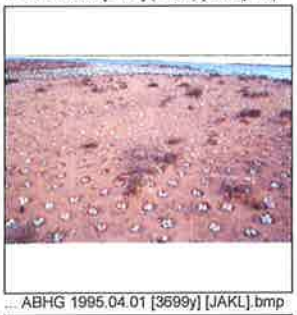
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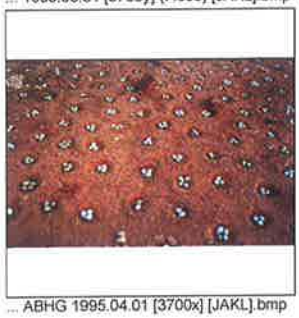
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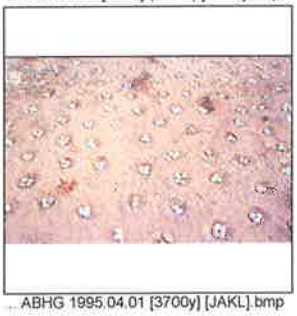
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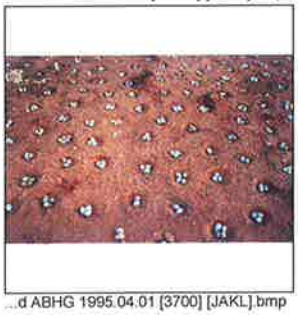
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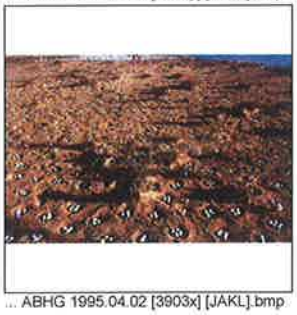
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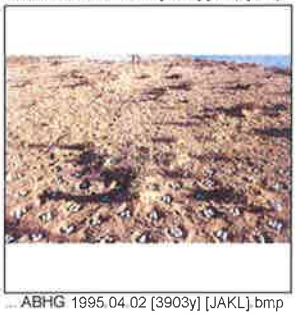
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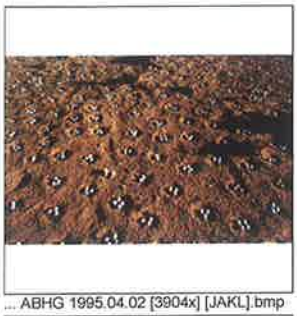
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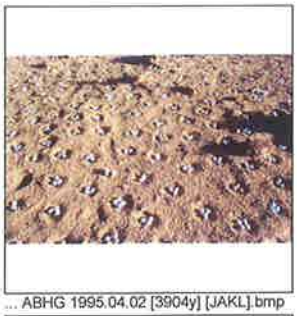
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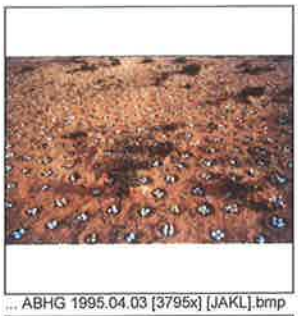
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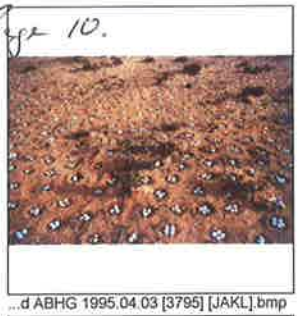
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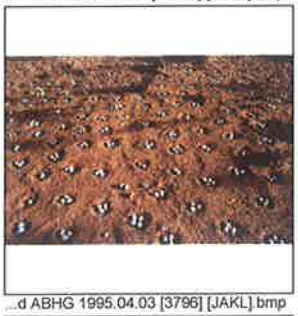
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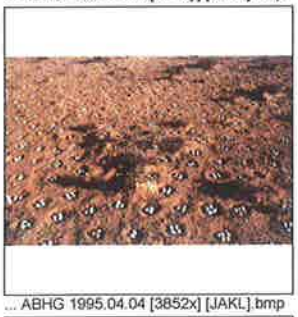
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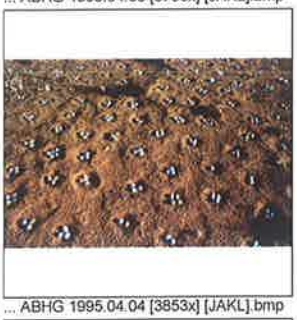
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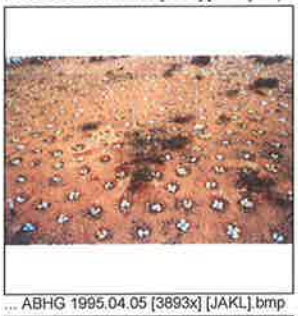
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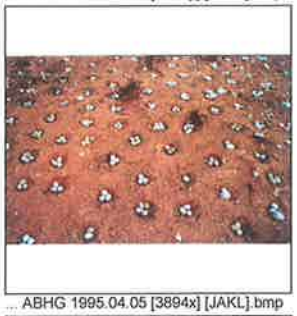
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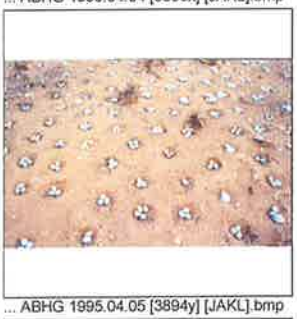
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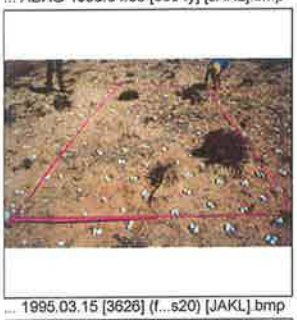
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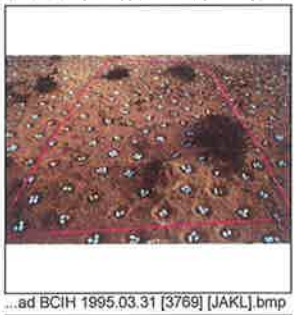
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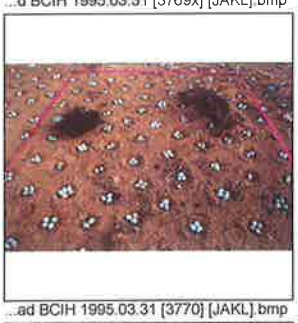
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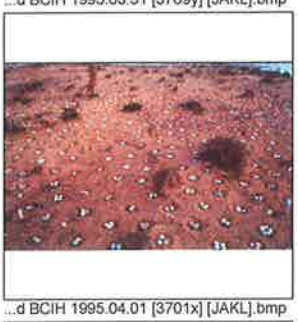
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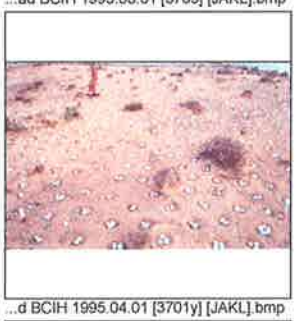
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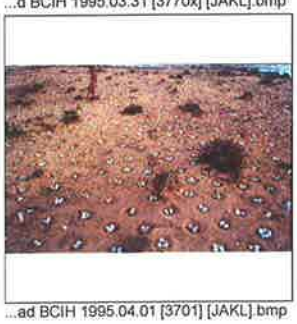
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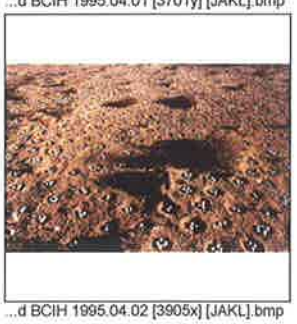
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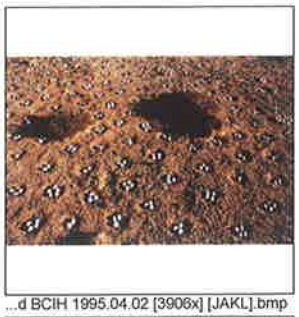
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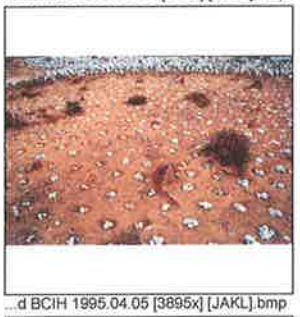
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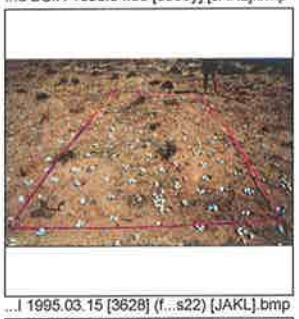
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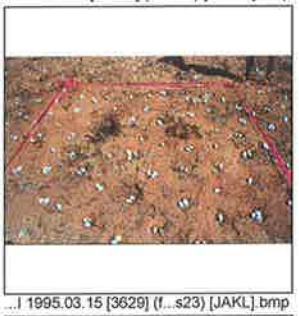
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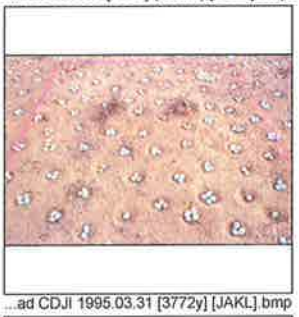
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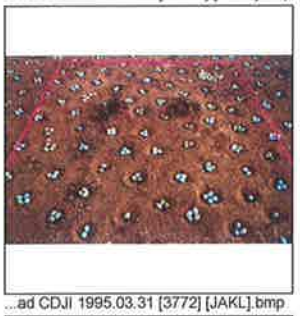
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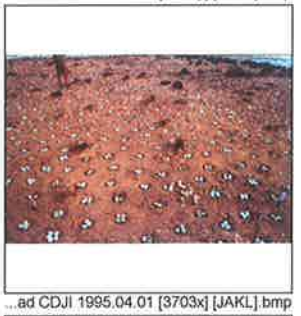
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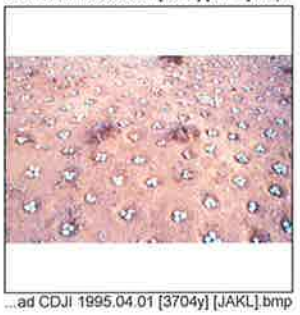
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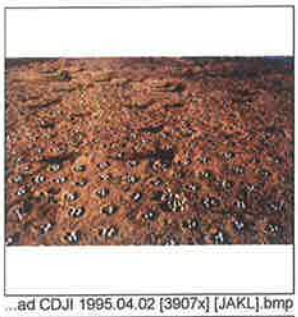
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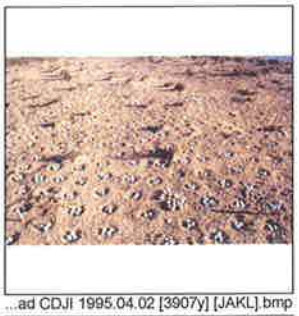
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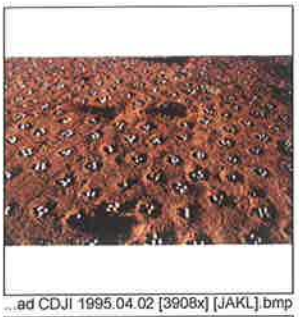
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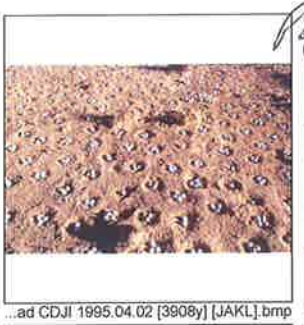
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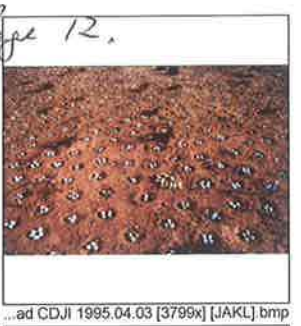
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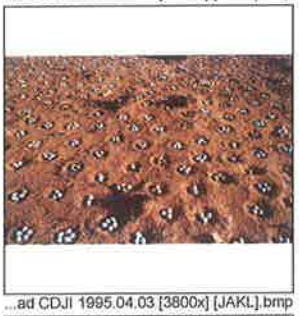
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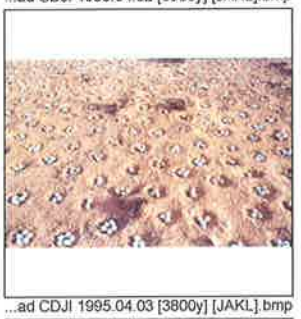
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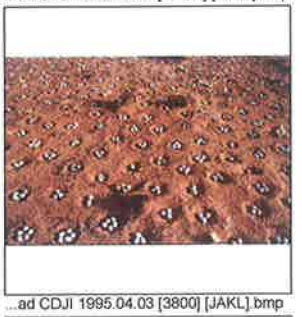
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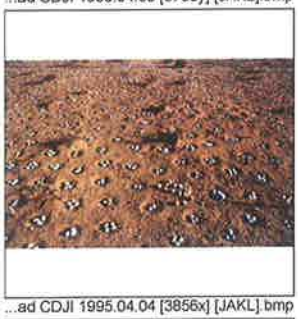
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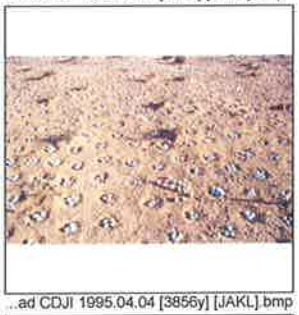
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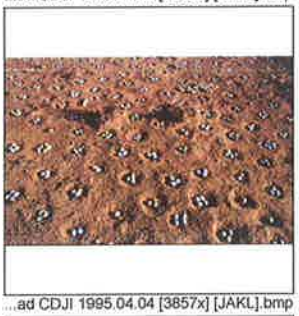
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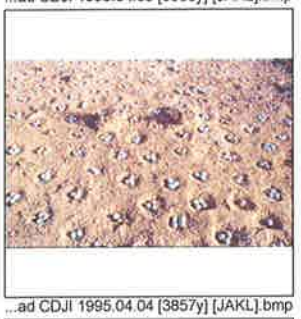
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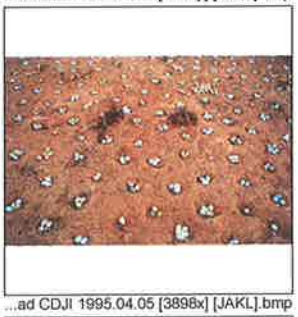
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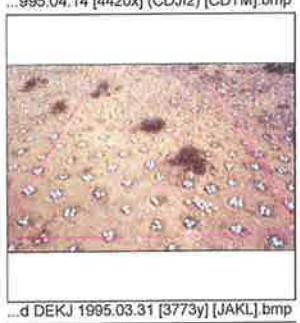
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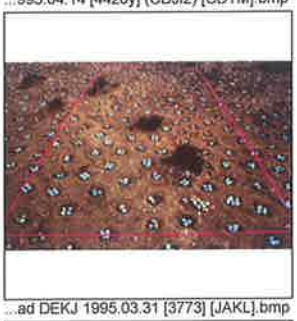
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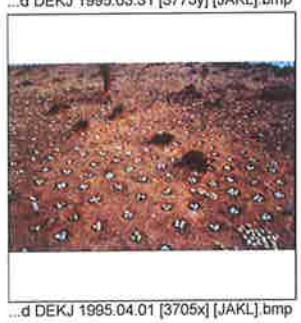
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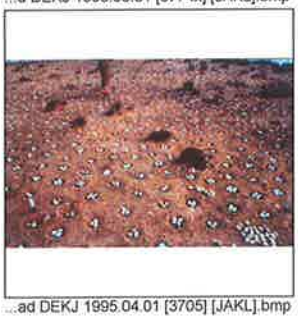
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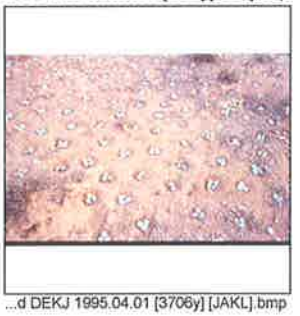
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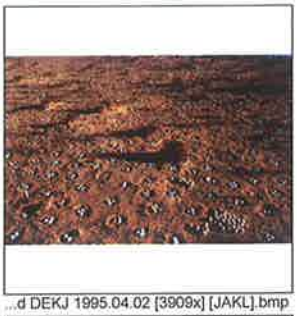
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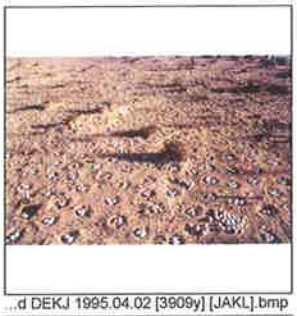
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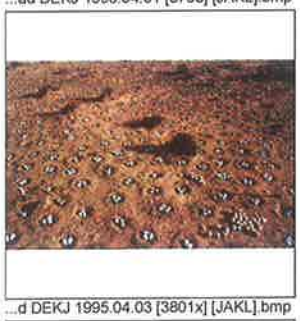
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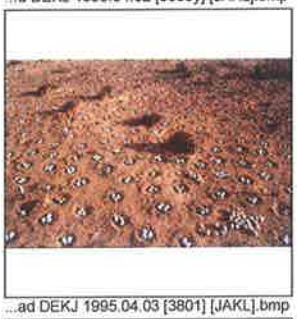
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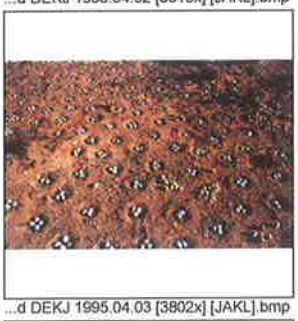
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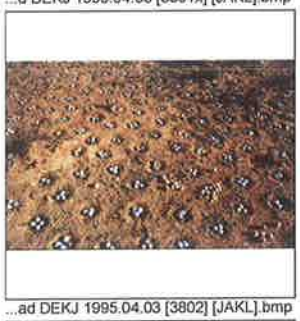
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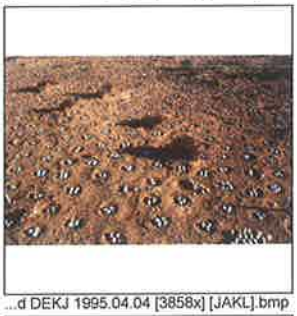
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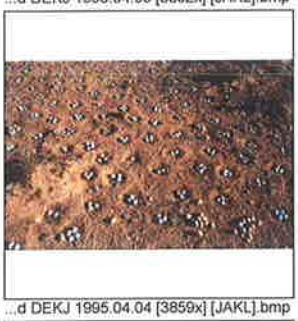
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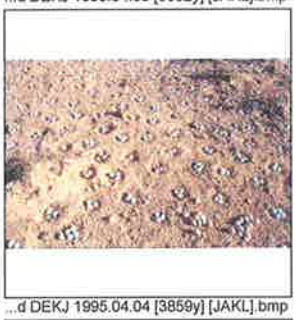
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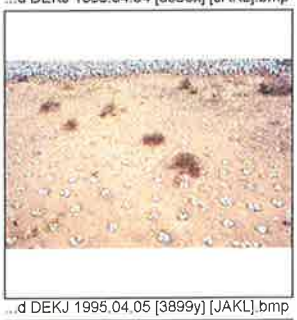
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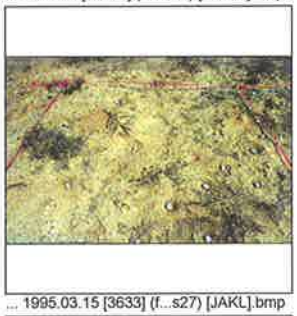
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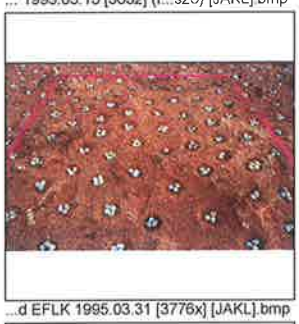
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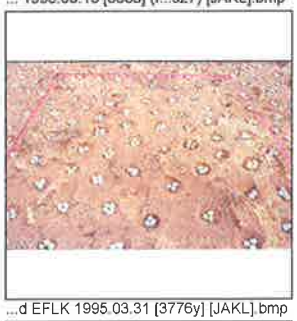
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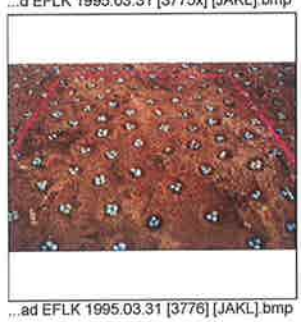
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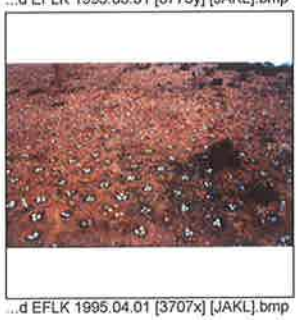
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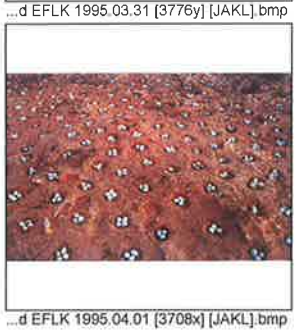
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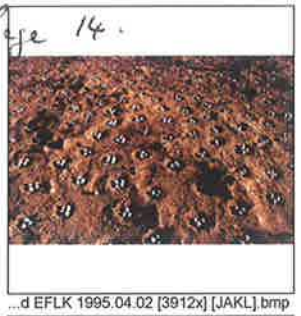
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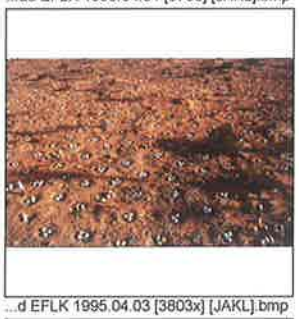
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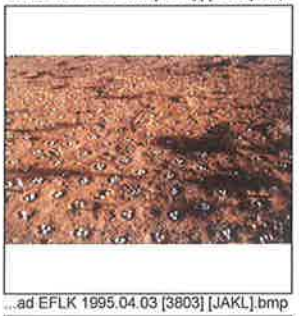
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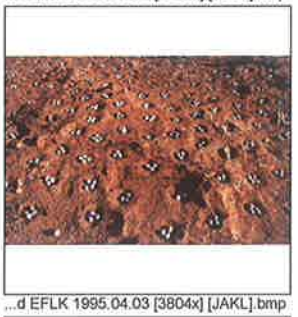
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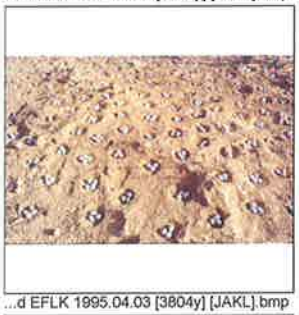
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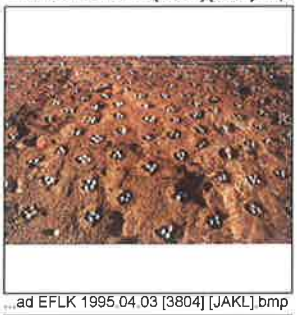
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...d EFLK 1995.04.04 [3860x] [JAKL].bmp


...d EFLK 1995.04.04 [3860y] [JAKL].bmp


...d EFLK 1995.04.04 [3861x] [JAKL].bmp


...d EFLK 1995.04.04 [3861y] [JAKL].bmp


...995.04.14 [4423x] (EFLK1) [CDTM].bmp


...995.04.14 [4423y] (EFLK1) [CDTM].bmp


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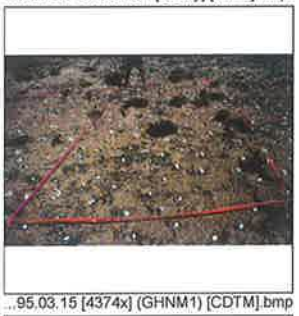
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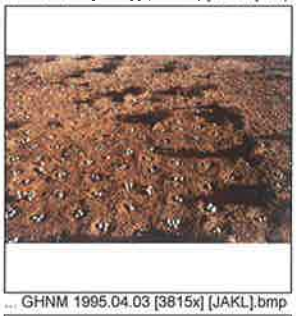
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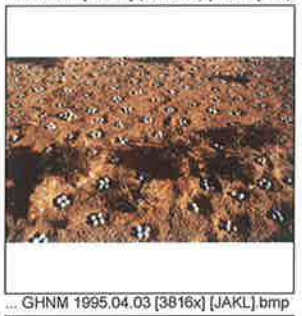
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...95.04.14 [4395y] (GHNM1) [CDTM].bmp


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...95.04.14 [4396y] (GHNM2) [CDTM].bmp


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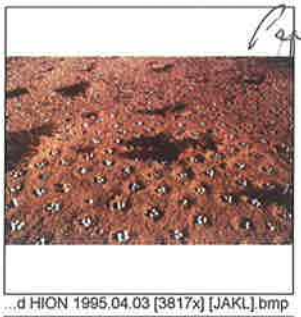
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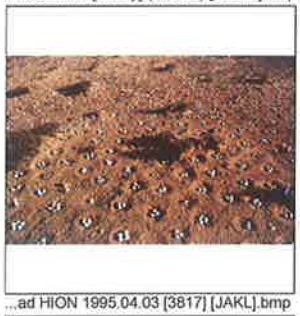
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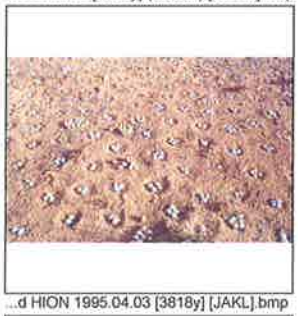
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...995.04.14 [4397y] (HION1) [CDTM].bmp


...995.04.14 [4398x] (HION2) [CDTM].bmp


...995.04.14 [4398y] (HION2) [CDTM].bmp


...995.03.15 [4378x] (IJPO1) [CDTM].bmp


...995.03.15 [4378y] (IJPO1) [CDTM].bmp


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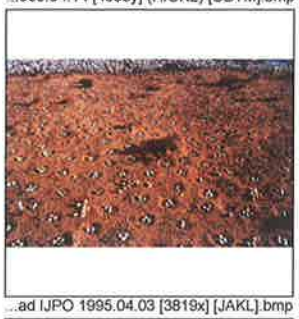
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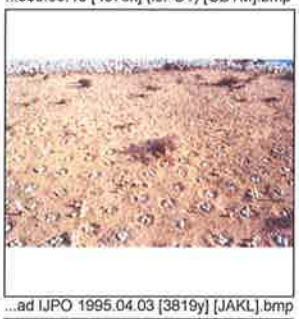
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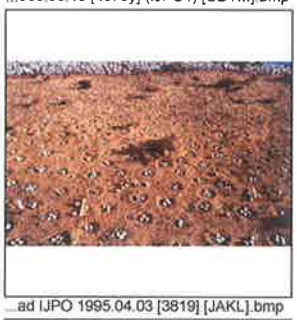
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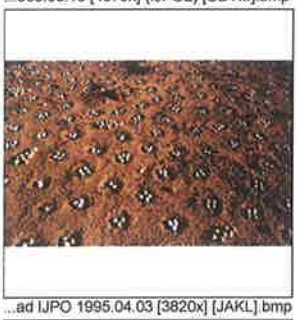
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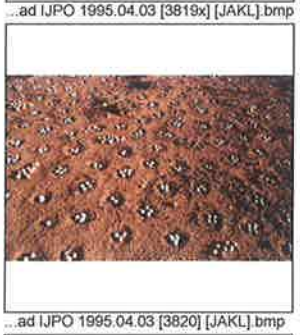
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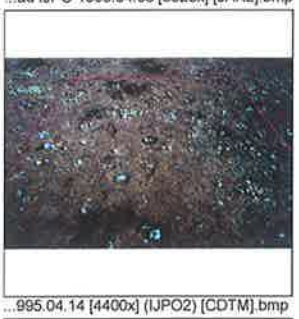
...995.04.14 [4399y] (IJPO1) [CDTM].bmp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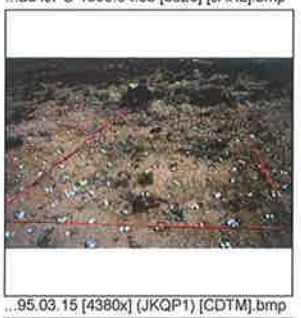
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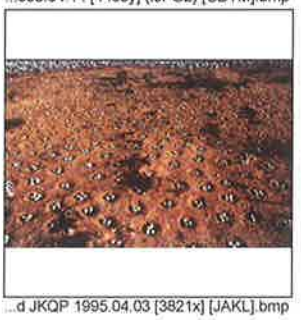
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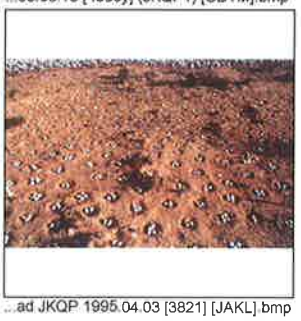
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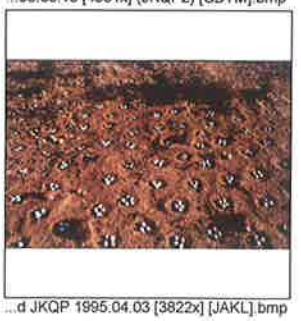
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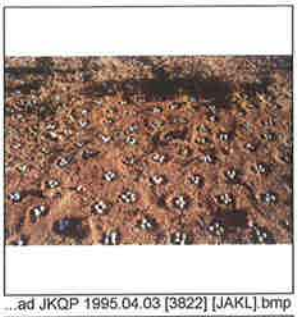
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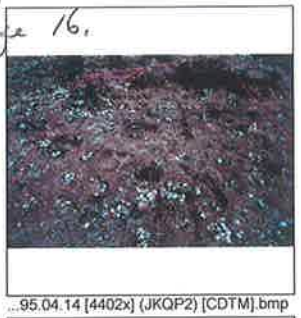
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...95.04.14 [4402y] (JKQP2) [CDTM].bmp


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...95.03.15 [4382y] (KLRQ1) [CDTM].bmp


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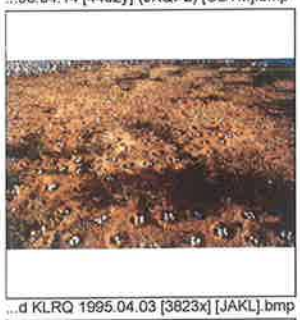
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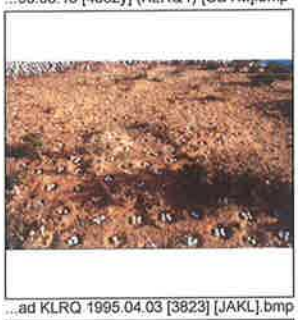
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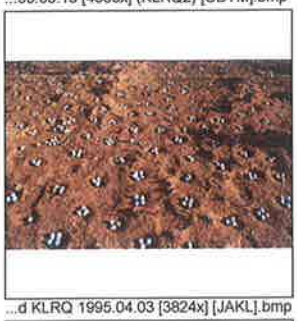
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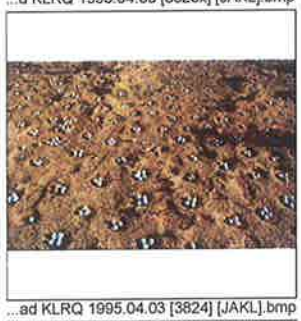
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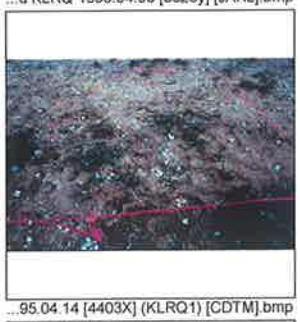
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...95.04.14 [4404y] (KLRQ2) [CDTM].bmp


...95.03.15 [4393x] (TSMN1) [CDTM].bmp


...95.03.15 [4393y] (TSMN1) [CDTM].bmp


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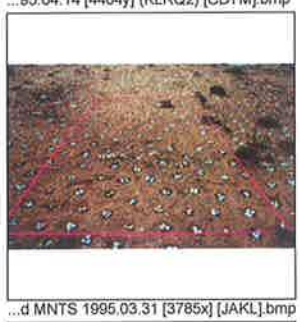
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...d MNTS 1995.03.31 [3786x] [JAKL].bmp


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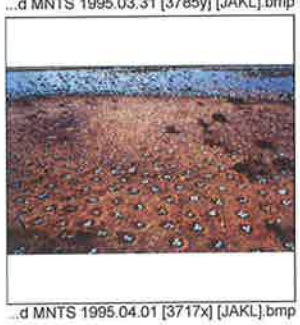
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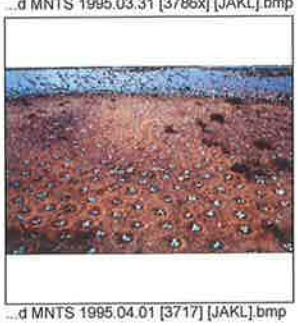
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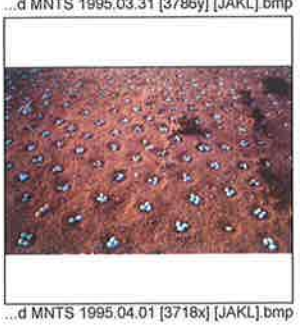
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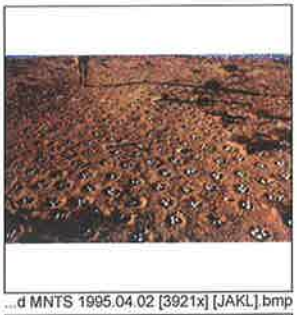
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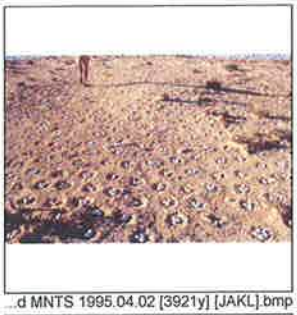
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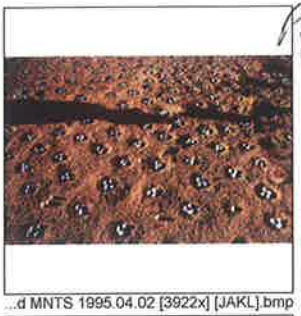
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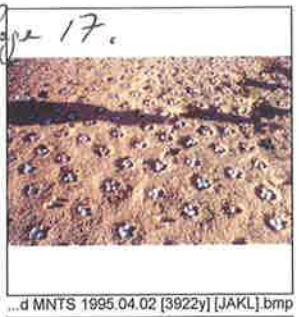
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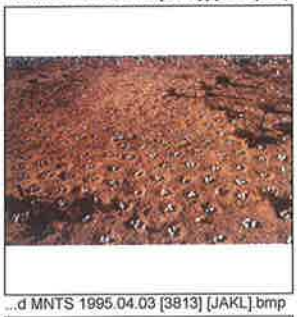
...d MNTS 1995.04.03 [3813y] [JAKL].bmp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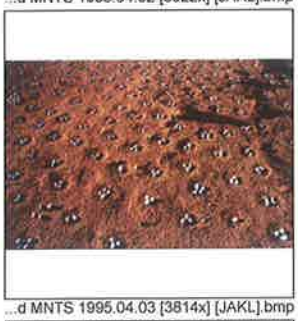
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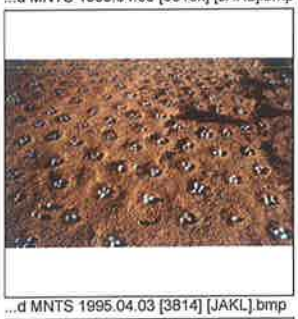
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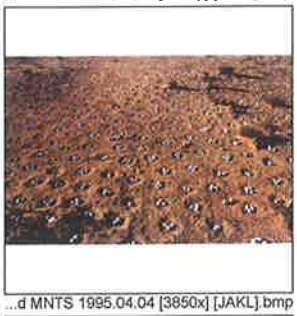
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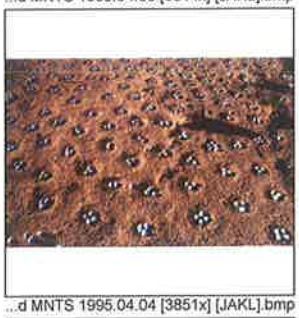
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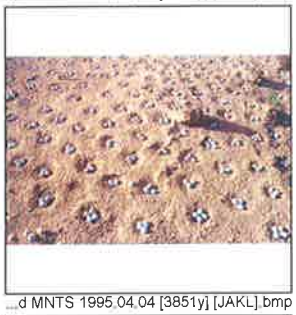
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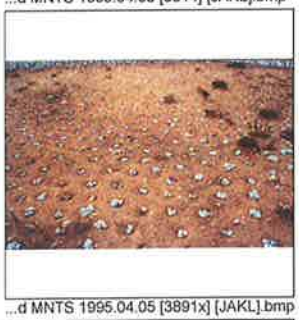
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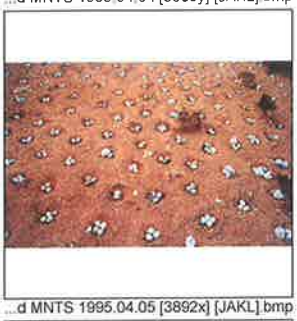
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...d MNTS 1995.04.05 [3892y] [JAKL].bmp


...95.04.14 [4405x] (MNTS1) [CDTM].bmp


...95.04.14 [4405y] (MNTS1) [CDTM].bmp


...95.04.14 [4406x] (MNTS2) [CDTM].bmp


...95.04.14 [4406y] (MNTS2) [CDTM].bmp


...95.03.15 [4391x] (UTNO1) [CDTM].bmp


...95.03.15 [4391y] (UTNO1) [CDTM].bmp


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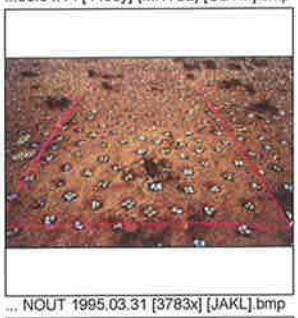
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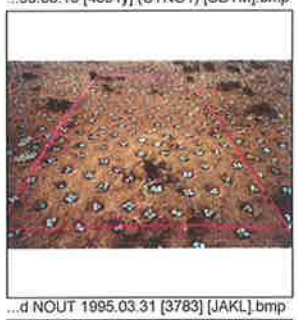
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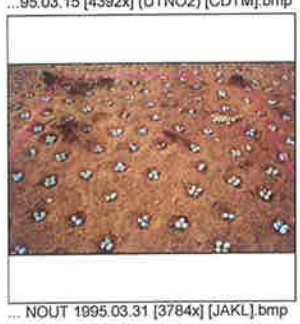
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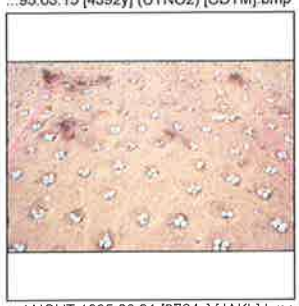
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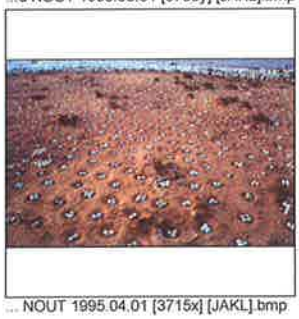
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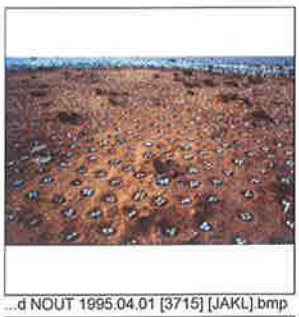
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... NOUT 1995.04.01 [3716x] [JAKL].bmp


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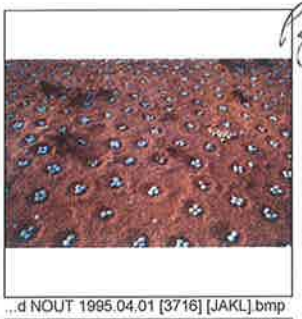
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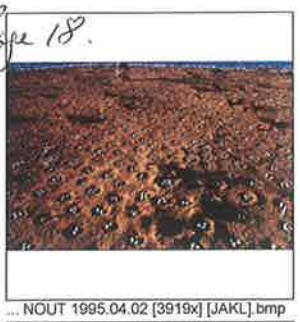
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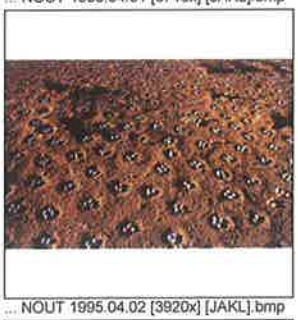
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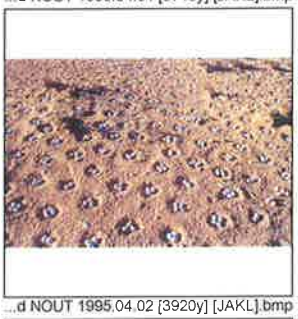
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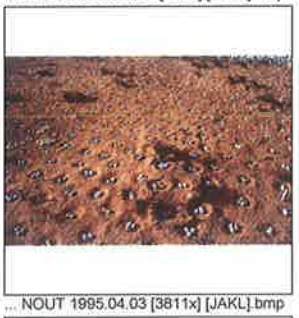
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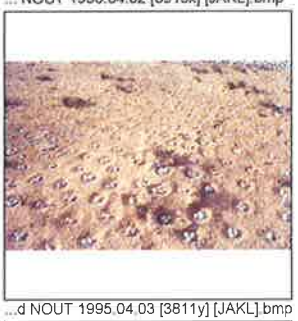
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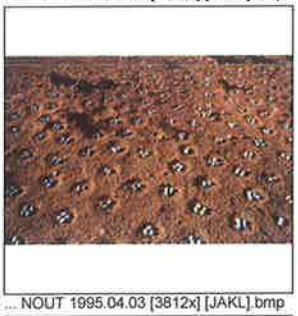
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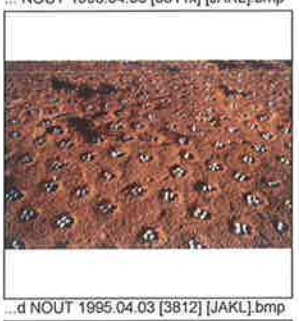
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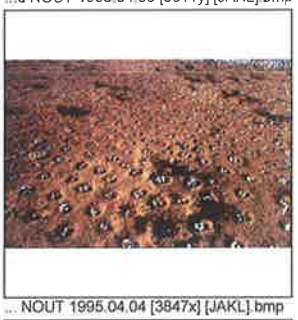
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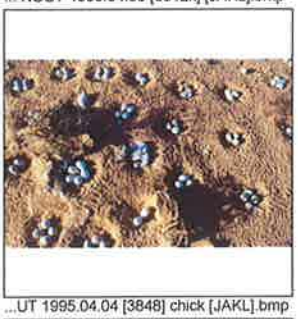
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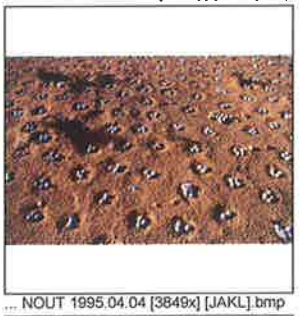
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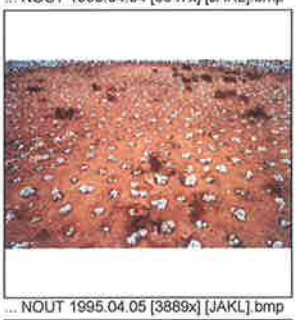
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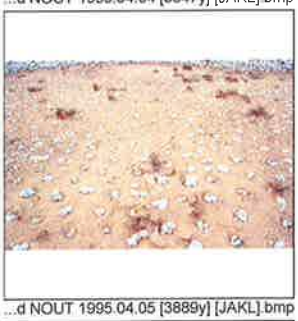
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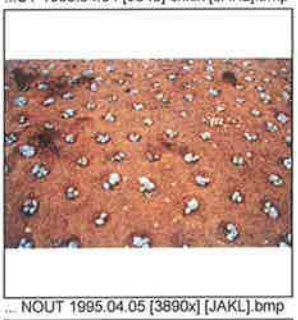
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...95.04.14 [4407y] (NOUT1) [CDTM].bmp


...95.04.14 [4408x] (NOUT2) [CDTM].bmp


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...95.03.15 [4389x] (VUOP1) [CDTM].bmp


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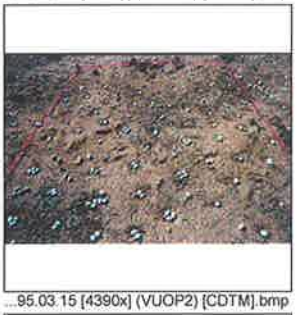
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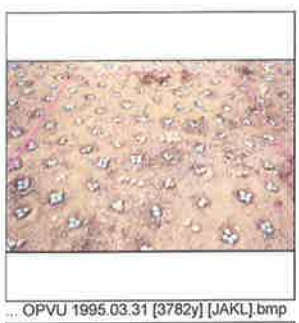
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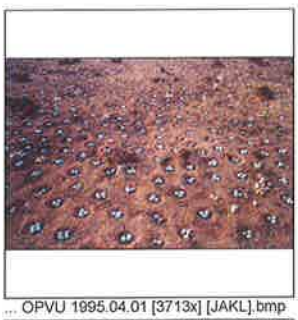
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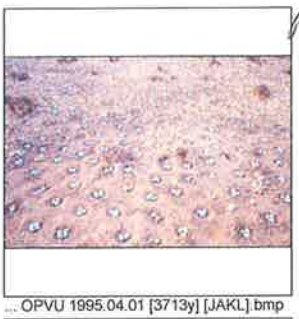
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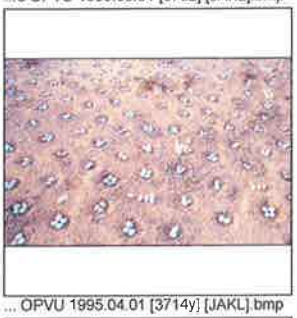
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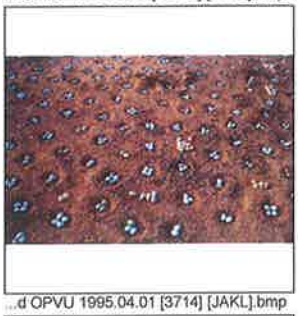
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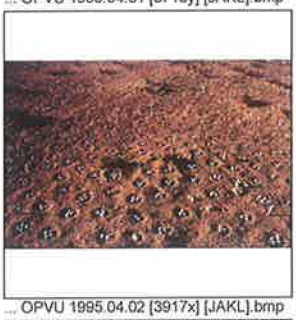
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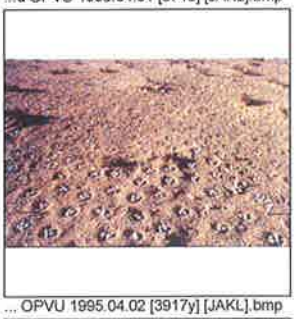
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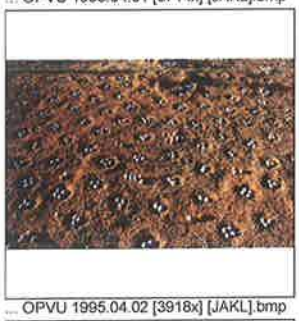
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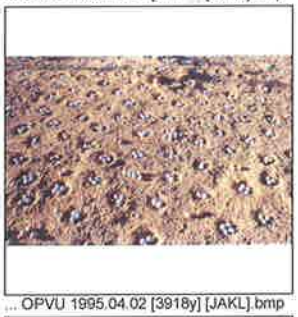
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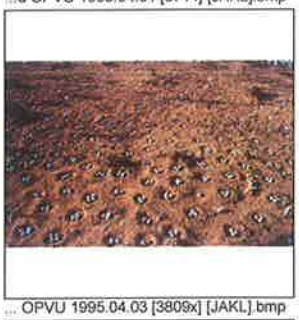
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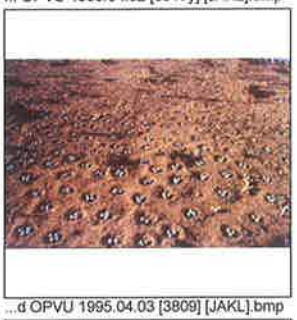
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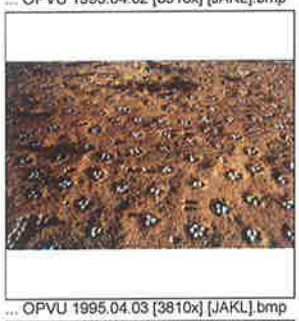
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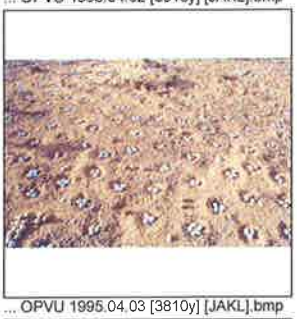
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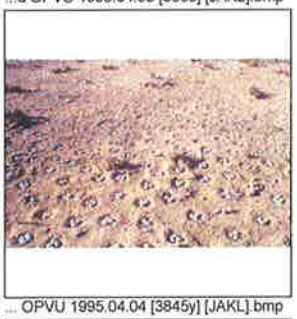
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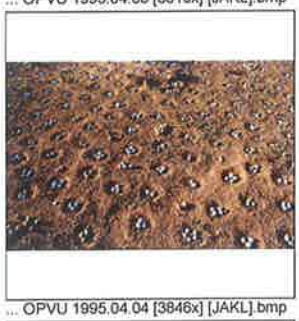
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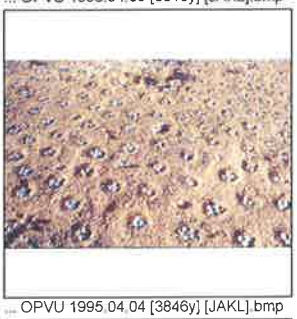
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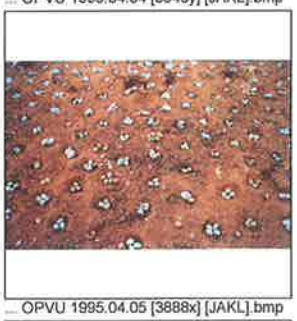
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... OPVU 1995.04.05 [3888y] [JAKL].bmp


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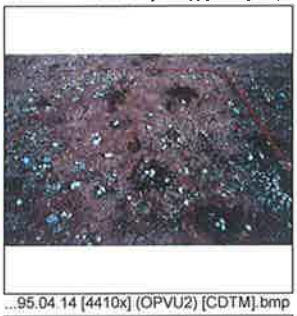
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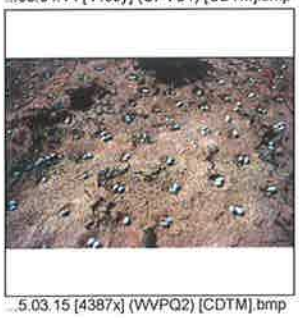
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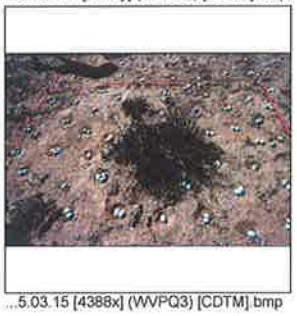
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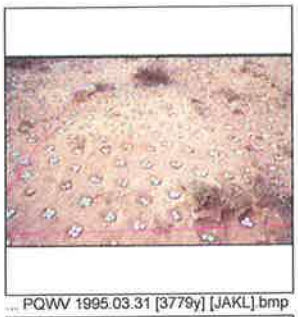
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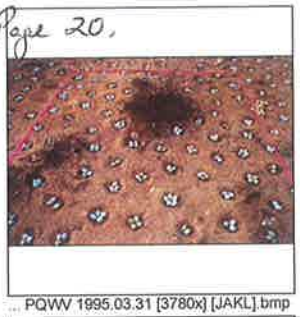
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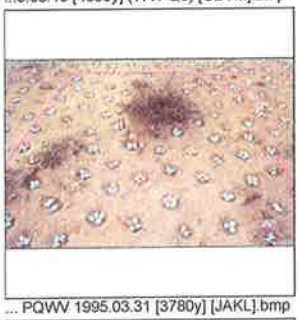
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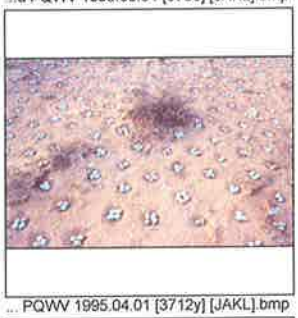
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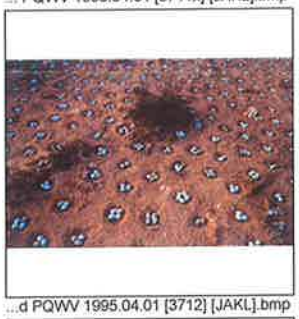
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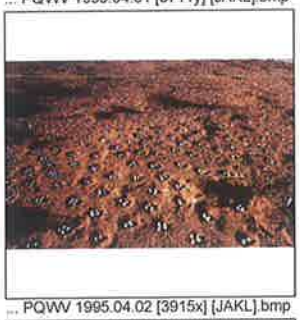
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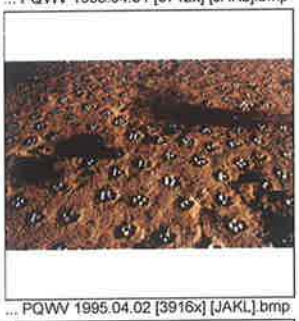
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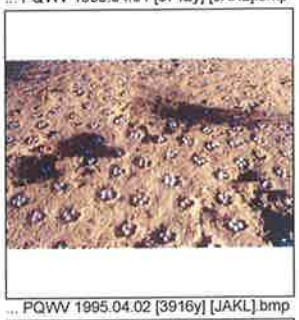
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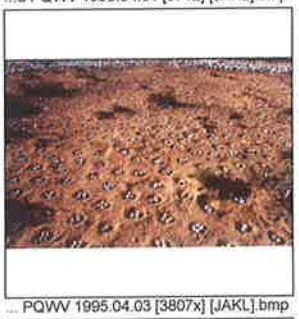
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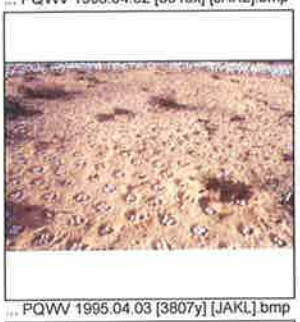
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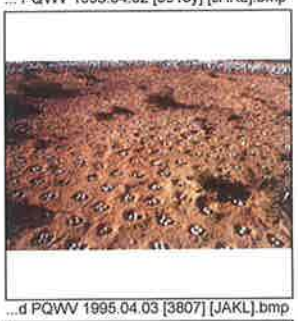
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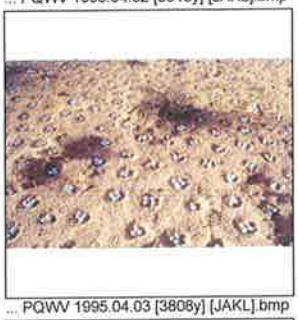
... PQWV 1995.04.03 [3808x] [JAKL].bmp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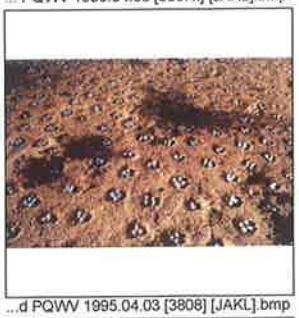
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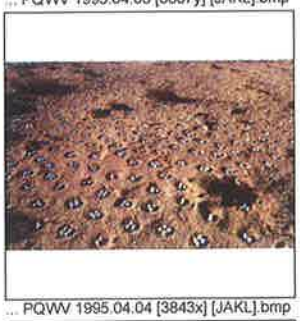
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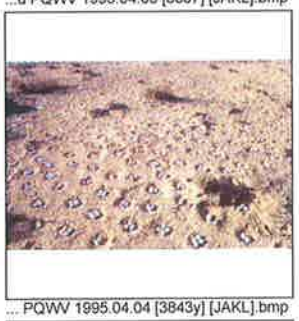
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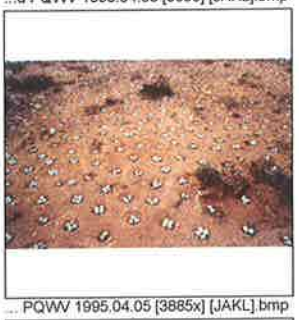
... PQWV 1995.04.04 [3844y] [JAKL].bmp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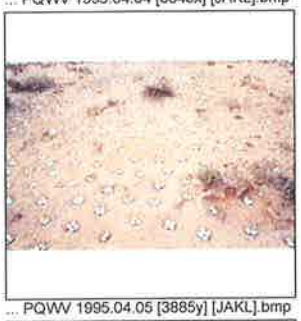
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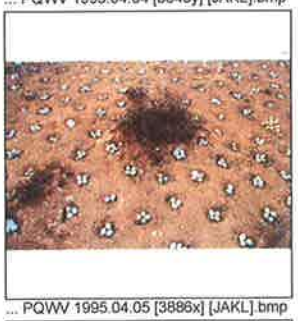
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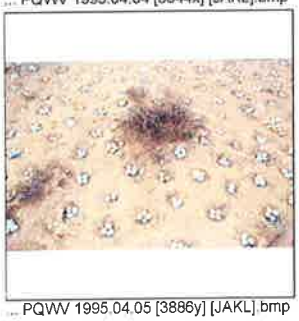
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...5.04.14 [4411x] (PQWV1) [CDTM].bmp


...5.04.14 [4411y] (PQWV1) [CDTM].bmp

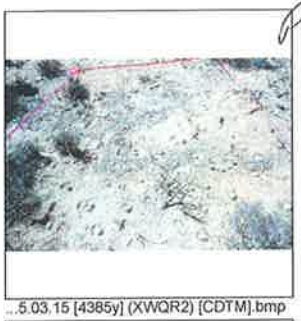

...5.04.14 [4412x] (PQWV2) [CDTM].bmp


...5.04.14 [4412y] (PQWV2) [CDTM].bmp


...5.03.15 [4384X] (XWQR1) [CDTM].bmp


...5.03.15 [4384y] (XWQR1) [CDTM].bmp


...5.03.15 [4385x] (XWQR2) [CDTM].bmp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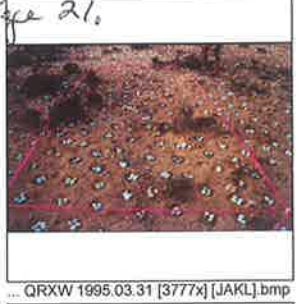
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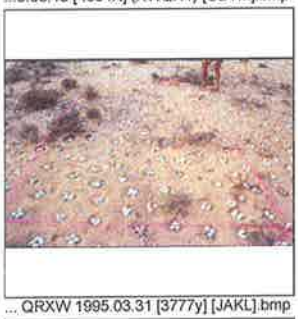
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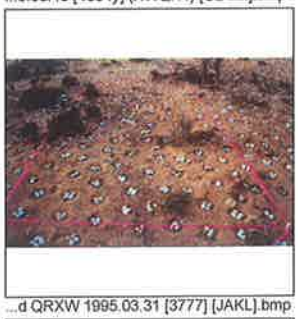
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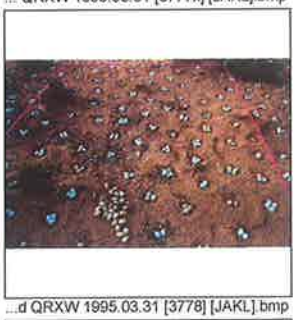
... QRXW 1995.03.31 [3778x] [JAKL].bmp


... QRXW 1995.03.31 [3778y] [JAKL].bmp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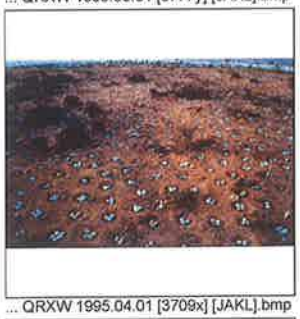
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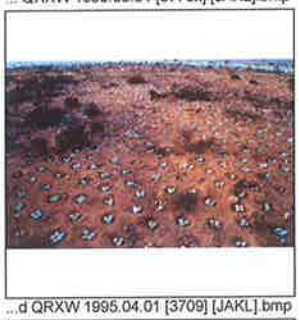
... QRXW 1995.04.01 [3709y] [JAKL].bmp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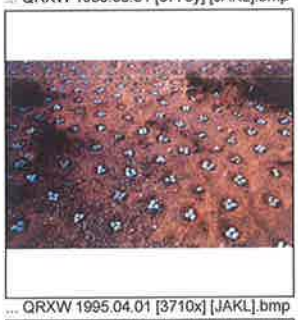
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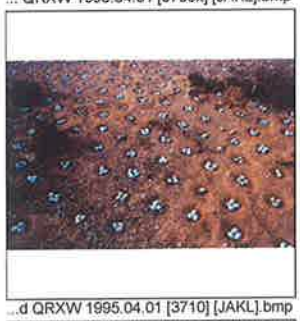
... QRXW 1995.04.01 [3710y] [JAKL].bmp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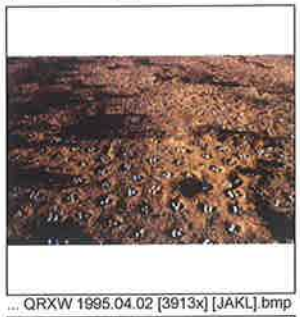
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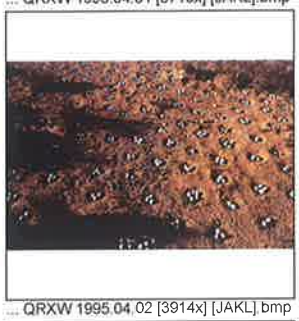
... QRXW 1995.04.02 [3913y] [JAKL].bmp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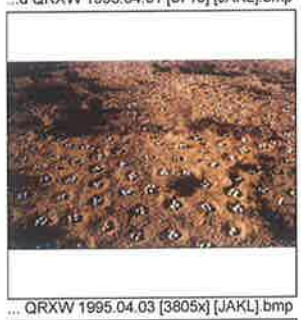
... QRXW 1995.04.02 [3914y] [JAKL].bmp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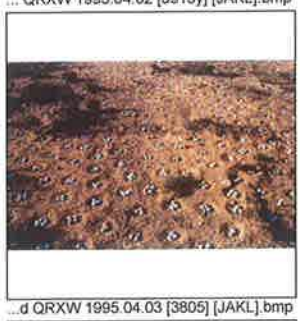
... QRXW 1995.04.03 [3805y] [JAKL].bmp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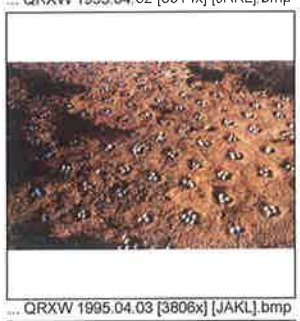
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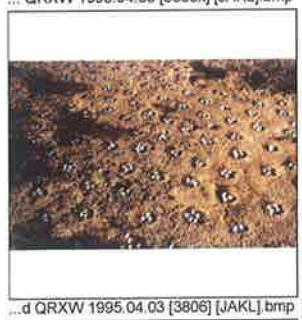
... QRXW 1995.04.03 [3806y] [JAKL].bmp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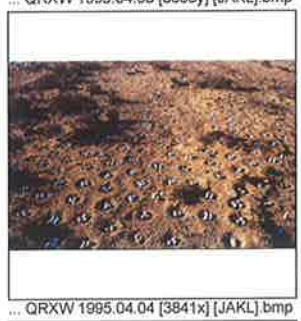
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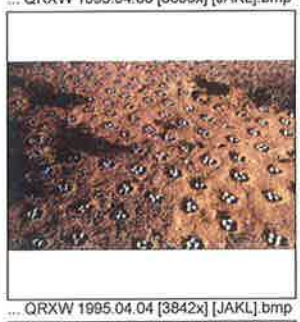
... QRXW 1995.04.04 [3841y] [JAKL].bmp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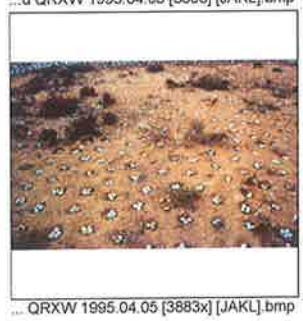
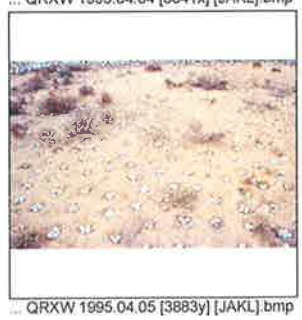
... QRXW 1995.04.04 [3842y] [JAKL].bmp


... QRXW 1995.04.05 [3883x] [JAKL].bmp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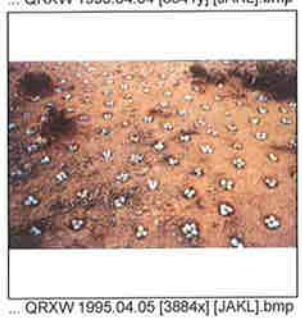
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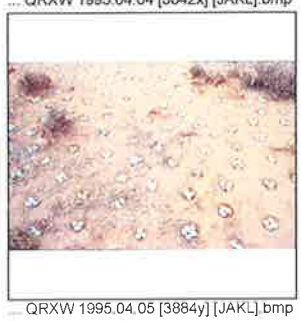
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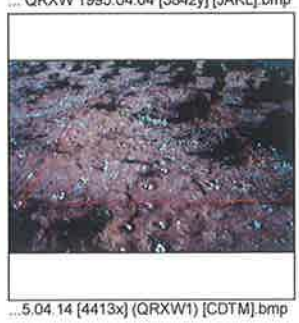
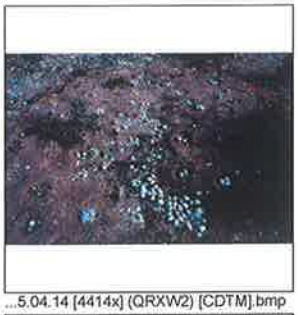
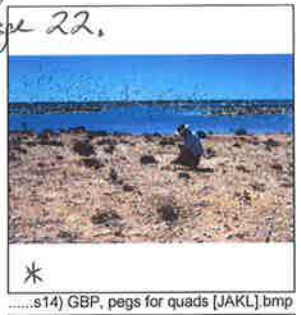

...5.04.14 [4413x] (QRXW1) [CDTM].bmp

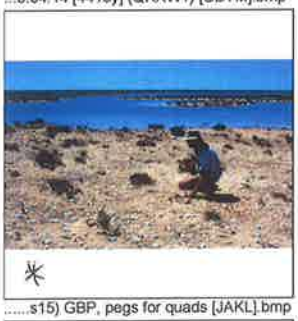

...5.04.14 [4413y] (QRXW1) [CDTM].bmp


...5.04.14 [4414x] (QRXW2) [CDTM].bmp

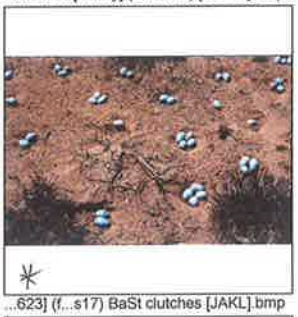

...5.04.14 [4414y] (QRXW2) [CDTM].bmp

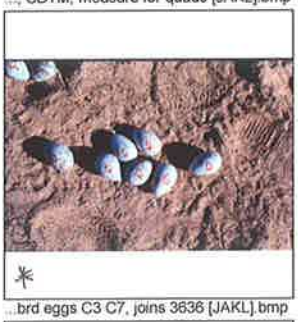

..., CDTM, measure for quads [JAKL].bmp

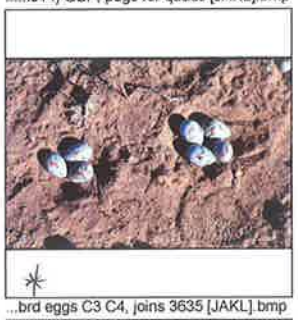

.....s14) GBP, pegs for quads [JAKL].bmp

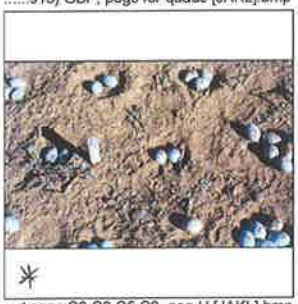

.....s15) GBP, pegs for quads [JAKL].bmp


...622] (f...s16) BaSt clutches [JAKL].bmp


...623] (f...s17) BaSt clutches [JAKL].bmp


...brd eggs C3 C7, joins 3636 [JAKL].bmp


...brd eggs C3 C4, joins 3635 [JAKL].bmp


...d eggs C2 C3 C5 C9, peg H [JAKL].bmp

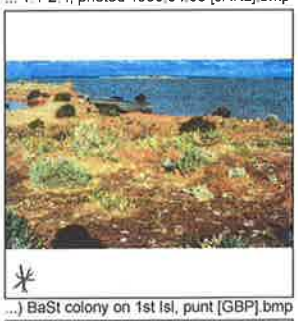

... 1.1-2.4, photod 1995.04.08 [JAKL].bmp

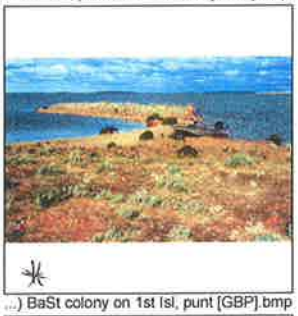

... 3.1-4.5, photod 1995.04.08 [JAKL].bmp

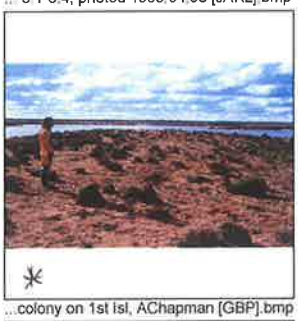

... 5.1-6.4, photod 1995.04.08 [JAKL].bmp

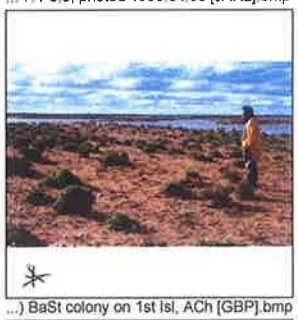

... 7.1-8.5, photod 1995.04.08 [JAKL].bmp

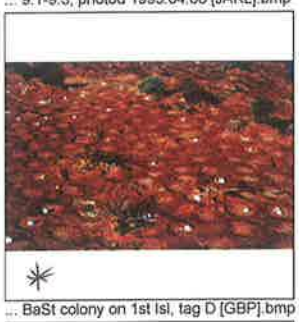

... 9.1-9.3, photod 1995.04.08 [JAKL].bmp

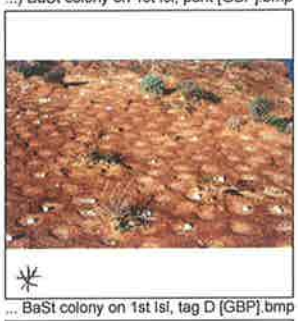

...) BaSt colony on 1st Isl, punt [GBP].bmp


...) BaSt colony on 1st Isl, punt [GBP].bmp

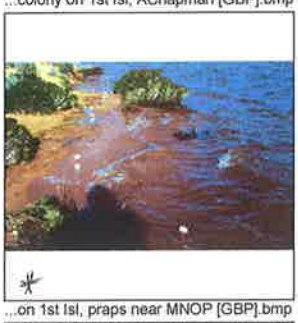

...colony on 1st Isl, AChapman [GBP].bmp


...) BaSt colony on 1st Isl, ACh [GBP].bmp


... BaSt colony on 1st Isl, tag D [GBP].bmp


... BaSt colony on 1st Isl, tag D [GBP].bmp


...on 1st Isl, praps near MNOP [GBP].bmp

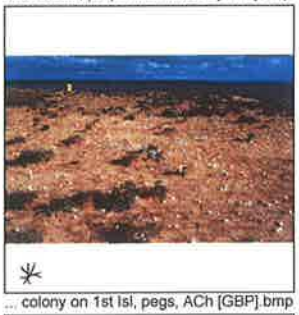

...on 1st Isl, praps near MNOP [GBP].bmp

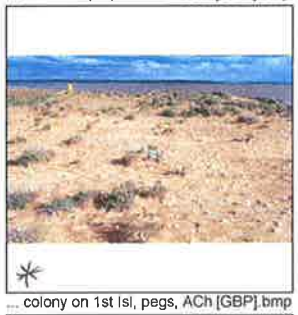

...on 1st Isl, praps near MNOP [GBP].bmp


...on 1st Isl, praps near MNOP [GBP].bmp

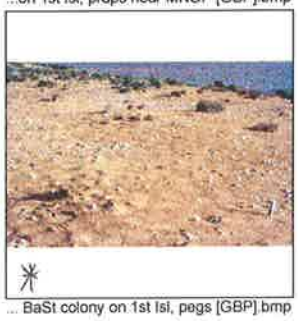

...on 1st Isl, praps near MNOP [GBP].bmp

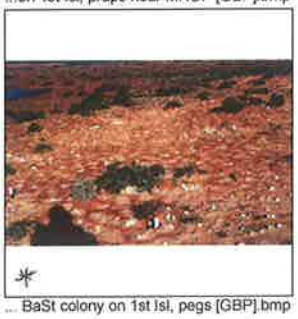

...on 1st Isl, praps near MNOP [GBP].bmp


... colony on 1st Isl, pegs, ACh [GBP].bmp

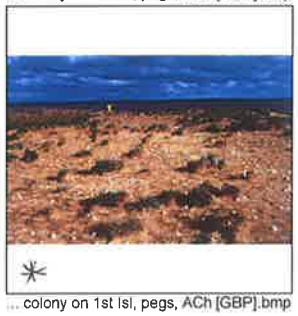

... colony on 1st Isl, pegs, ACh [GBP].bmp


... BaSt colony on 1st Isl, pegs [GBP].bmp


... BaSt colony on 1st Isl, pegs [GBP].bmp


... BaSt colony on 1st Isl, pegs [GBP].bmp

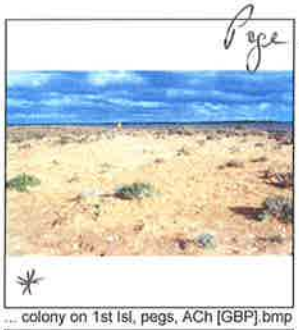

... BaSt colony on 1st Isl, pegs [GBP].bmp

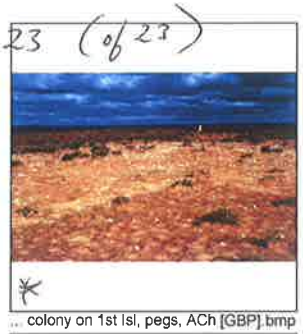

... colony on 1st Isl, pegs, ACh [GBP].bmp

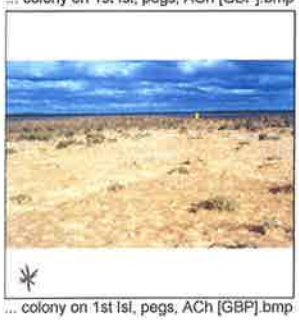

... colony on 1st Isl, pegs, ACh [GBP].bmp


... colony on 1st Isl, pegs, ACh [GBP].bmp


... colony on 1st Isl, pegs, ACh [GBP].bmp


... colony on 1st Isl, pegs, ACh [GBP].bmp


... colony on 1st Isl, pegs, ACh [GBP].bmp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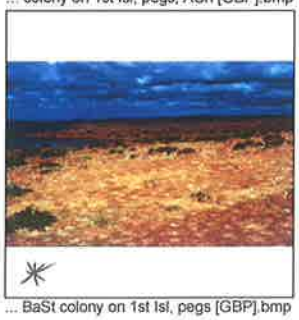
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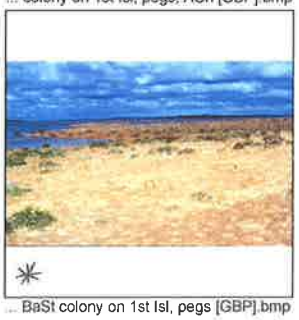
... BaSt colony on 1st Isl, pegs [GBP].bmp


...] (s38) BaSt colony on 1st Isl [GBP].bmp


...] (s39) BaSt colony on 1st Isl [GBP].bmp