Breeding Season Survey of Water Rails in Poole Harbour

Spring 2013

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Introduction

In 2004 Dave Chown conducted a breeding season survey of water rails in Poole Harbour's reedbeds.
Nine years on and Mark Constantine, who also kindly funded that survey, decided it was time for another and so commissioned me with the help of Dave Chown to repeat the survey.

Objectives

To estimate the breeding season population of water rails in Poole Harbour and compare the results to the 2004 survey.

Methodology

The method followed that described by Gilbert *et al* (1998), using a recording of water rails 'sharming' to elicit a response. In accordance with the 2004 survey, there were some departures from this method which are outlined below.

Gilbert *et al* (1998) recommends approaching areas to within 200m. In 2004 this was found to be insufficient, both in terms of eliciting responses and distinguishing between pairs and single birds, so for this survey areas were approached to a maximum of 100m in accordance with the 2004 survey. This involved walking around the margins of narrow reedbeds and entering larger reedbeds by following natural paths or tracks made by deer.

The method involved stopping frequently at intervals of up to 80m to play a loop recording of a pair of water rails 'sharming'.
Gilbert *et a*l (1998) recommended method is to 'play the tape for 60 seconds, then switch it off. Remain stationary and quiet and listen for 60 seconds. If there is no response, switch the tape on for a further 30 seconds, switch off and listen for a further 30 seconds. If there is still no response, assume there are no water rails present in the area'. However, as found in 2004, it was sometimes necessary to play more cycles of the recording later in the mornings and later in the survey, when the birds became less responsive.

All calling water rails were plotted on field maps using CBC-notation. It is known that water rail will follow a recording, so considerable care had to be taken not to record the same pair in a different location. In many cases, adjacent pairs were heard simultaneously, but this was not always the case, such that it was necessary to make value judgements as to whether proximate non-simultaneous registrations related to the same birds.

Dates and timing

The recommended survey time is late March to early April. This is a surprisingly small window, however before this period wintering birds may well be counted and after this period some paired birds may not be responding as pairs.

The 2004 survey started on 27th March to try to limit the possibility of counting wintering birds. Because many sites were difficult to walk through and a large number of water rails were found, the survey took longer than anticipated and wasn't completed until 20th April. The implications of these dates and recommendations for further surveys were outlined in the report. (Chown 2004).

It was hoped that armed with this information the 2013 survey could be better prepared and thus avoid a late finish, unfortunately this proved not to be the case. The survey was seriously delayed by the weather and when it was possible to get out, many of the areas were considerably more waterlogged than in 2004 and proved even more difficult to cover. The implications for the interpretation of the results are discussed from page 49.

Although temperatures were unseasonably low, the delays were mainly due to strong winds. Gilbert *et al* (1998) recommends surveys to be done ideally in calm conditions, avoiding days with winds stronger than Beaufort force 3. This is partly to enable the birds to hear the recording and more pertinently for the observer to be able to hear the responses clearly.

The survey started promptly on 27th March as planned but after a just a few visits the weather took a turn for the worse. Poole Harbour, along with the rest of Britain, entered into an unprecedented period of 'bad' weather with temperatures well below average, lots of rain including periods of snowfall, and wind strength rarely dropping below force 4.

From 29th March until 18th April only two and a half morning surveys were possible.
The survey was planned to be finished before the 18th and it had hardly began. We consulted with Mark Constantine and it was agreed to carry on, with the assumption that the water rails along with most other breeding birds were well behind their breeding schedule.
Thankfully, from 19th April there was a long period of settled weather and the vast majority of the survey was able to be completed by 1st May.

Gilbert *et al* (1998) recommends surveying during the early morning. However, as found in 2004, because of the vast area of reedbed that needed to be surveyed, fieldwork continued later than the 'early morning after sunrise' recommended.
In 2004, fieldwork often had to continue past midday and on four occasions past 13.00 hrs which reduced the repsonses, sometimes significantly. Although clearly unavoidable at the time, for this survey it was decided whereever possible to finish by 11.00hrs.
This was largely achieved with just two exceptions (see Appendix 1)

Another departure from Gilbert *et al* (1998) and Chown (2004) were the inclusion of evening visits.
These were deemed necessary when it became apparent that the weather conditions were going to hold up the survey. It is known that water rails respond equally as well in the evening, right up to darkness. Wilson and Horner (in prep).

Evenings however provided only a short window of opportunity, with a maximum of 2 hours available. In the event only 4 out of the 21 visits were conducted in the evening, accounting for 10% of the survey time.

Number of observers

Most of the survey was undertaken by a single observer as in the 2004 survey. Gilbert *et al* (1998) does recommend two observers in order to help with response interpretation, however it was felt that a competent single observer would achieve very similar results.

Survey area

The objective of the 2004 survey was to estimate the breeding season population of water rails within the 13 reedbeds mapped by Cook (2001). The objective of the 2013 survey was to estimate the breeding season population of water rails in Poole Harbour.
For the 2013 survey, a recce of the harbour found six other reedbed areas not covered by Cook (2001) and hence not included in the 2004 survey. These sites were added.

Because the 2004 survey area was strictly defined as the reedbeds mapped by Cook (2001), a small number of pairs and singles just outside Cook's boundaries were excluded from the totals (i.e. they were treated as additional sites). Where these birds were very close to Cook's boundaries – an arbitrary 20m – it seems more appropriate to treat them as if they were within the site, as was done in this survey, to allow a more accurate comparison of counts. Therefore, the 2004 results have been amended to include such birds and they have been added to the main site totals.
Birds found in other distinct reedbed areas away from the main mapped reedbed are still treated as being in additional sites.
The amendments are listed under Table 1.

Brownsea reedbed, Buck's Cove and Shag Looe were not surveyed.

Figure 1. Recording areas. (Areas in green additional to 2004)

Results

A total of 177 pairs and 112 single birds were recorded during the survey, compared with 211 pairs and 71 singles in 2004. In each case these totals include a minority of sites not surveyed in the other year.
For direct comparison of results, adjustments must be made for the extra reedbed areas covered in the 2013 survey along with the areas that were covered in 2004 but not in 2013.

A total of 20 pairs and 12 single birds were recorded in the additional reedbeds and a total of 14 pairs and 5 single birds were recorded in 2004 in areas not covered in 2013.

The strictly comparable results for areas surveyed in both years are thus 157 pairs and 100 singles (257 sites) in 2013 and 197 pairs and 66 singles (263 sites) in 2004.

The total of pairs was just over 20% lower in 2013, but more single birds responded, such that the total number of sites (pairs and singles) was almost unchanged. The method dictates that only pairs are included in the population estimate, implying a decline since 2004, but this result is thought, at least in part, to be a consequence of the survey taking place later in the season in 2013, when response by only one member of a pair is thought to be more likely. Rather than a decline, the similarity in total occupied sites suggests a stable population, although there have been some marked changes at individual recording sites.

The site with the highest count of pairs was East Holton with 37. South Middlebere held the highest density of pairs with 2.03 pairs per hectare. The highest density amongst the larger reedbeds was Lytchett Bay with 1.81 pairs per hectare.

Table 1. Counts of water rail pairs and single birds in Poole Harbour reedbeds and adjacent areas with comparisons to 2004

Recording area	Date	Pairs	Singles	Sites (Pairs + Singles)	Ha	Pairs per ha	Pairs 2004	Singles 2004	Sites 2004	Change 2004-2013 (pairs)
Lytchett Bay	23, 24, 25 Apr	30	6	36	16.62	1.81	25*	12*	37	Up 20%
East Holton (Holton Lees)	27, 29, 30 Apr	37	15	52	35.26	1.05	41*	20	61	Down 10 %
Holton Heath	30 Apr, 1 May	13	25	38	17.31	0.75	32*	6	38	Down 59 %
Keysworth reedbeds*	21 Apr, 1 May	26	21	47	19.2*	1.35	24*	3*	27	Up 8%
Swineham Point	20 Apr	3	8	11	9.01	0.33	12	6*	18	Down 75%
The Moors	7 Apr	1	4	5	22.53	0.04	25*	8*	33	Down 96%
Slepe	13 Apr	11	1	12	12.77	0.86	8	3	11	Up 38%
Salterns	29 Mar	4	5	9	10.77	0.37	7	2	9	Down 43%
Middlebere	28 Mar	11	3	14	7.1	1.55	7	0	7	Up 57%
Wych Lake west	28 Mar	0	0	0	0.61	0.00	0	1	1	Same
South Middlebere	27 Mar, 19 Apr	12	7	19	c.5.9*	2.03	7	1	8	Up 71%
Wych Lake east	6 Apr	3	2	5	1.57	1.91	3	1	4	Same
Total	-	**151**	**97**	**248**	-	-	**191**	**63**	**254**	-
Additional areas to those mapped by Cook										
Slepe	13 Apr	4	0	4	?	-	1	1	2	-
Turlin Moor (Lytchett Bay)	28 Apr	0	1	1	?	-	2	0	2	-
Wych Lake west	28 Mar	1	1	2	?	-	1	1	2	-
Wych Lake east	6 Apr	1	1	2	?	-	2	0	2	-
Middlebere	28 Mar	0	0	0	?	-	0	1	1	-
Total	**-**	**6**	**3**	**9**	**-**	**-**	**6**	**3**	**9**	**-**
Totals of comparable sites	**-**	**157**	**100**	**257**	**-**	**-**	**197**	**66**	**263**	**-**
Additional areas covered in 2013 but not in 2004										
Other areas of Wych Lake	19 Apr	6	0	6	?	-	-	-	-	-
Upton Country Park	28 Apr	2	2	4	?	-	-	-	-	-
Wareham Meadows (NW)	21 Apr	7	6	13	?	-	-	-	-	-
Middlebere Lake	19 Apr	4	0	4	?	-	-	-	-	-
Studland	19 Apr	0	1	1	?	-	-	-	-	-
Other areas of Swineham	20 Apr	0	2	2	?	-	-	-	-	-
Other areas of The Moors	7 Apr	1	1	2	?	-	-	-	-	-
Total	-	**20**	**12**	**32**	-	-	-	-	-	-
Grand Total	-	**177**	**112**	**289**	-	-	**-**	-	-	-

* To facilitate direct comparison to 2004, birds recorded in 2004 in areas of Keysworth not covered in 2013 (Buck's Cove and Shag Looe) are deducted from the totals. The area total has also been modified to reflect the smaller area covered.

* Extent of reedbed at South Middlebere was significantly different from that mapped by Cook (2001) and has been recalculated.

* 2004 totals amended: birds less than 20m beyond boundary of survey areas re-assigned to them as follows; Lytchett Bay (1 pair, 1 single), East Holton (1 pair), Holton Heath (1 pair), Swineham (2 singles), The Moors (1 pair and 1 single).

Results by site

Lytchett Bay

Date surveyed: Apr 23rd 24th and 25th
Habitat: Tidal reedbed, up to 20% saline (2001)
Area: 16.62 ha

30 pairs and 6 singles compared to 25 pairs and 12 singles in 2004.
Recorded pairs up by 20% however occupied sites (pair and single bird responses) very similar indeed to 2004 with 36 sites in this survey compared to 37 in 2004.
Density of 1.81 pairs per hectare third highest of survey,
Increase in number of pairs recorded in eastern reedbed from 8 to 12 pairs producing a more even distribution overall than 2004.

Turlin Moor (Lytchett Bay)

Date surveyed: Apr 28th
Habitat: Tidal reedbed

No pairs heard, just one single bird recorded. Two pairs recorded in 2004.

Fig 2. Distribution of water rails at Lytchett Bay (Dots: pairs. Circles: single birds)

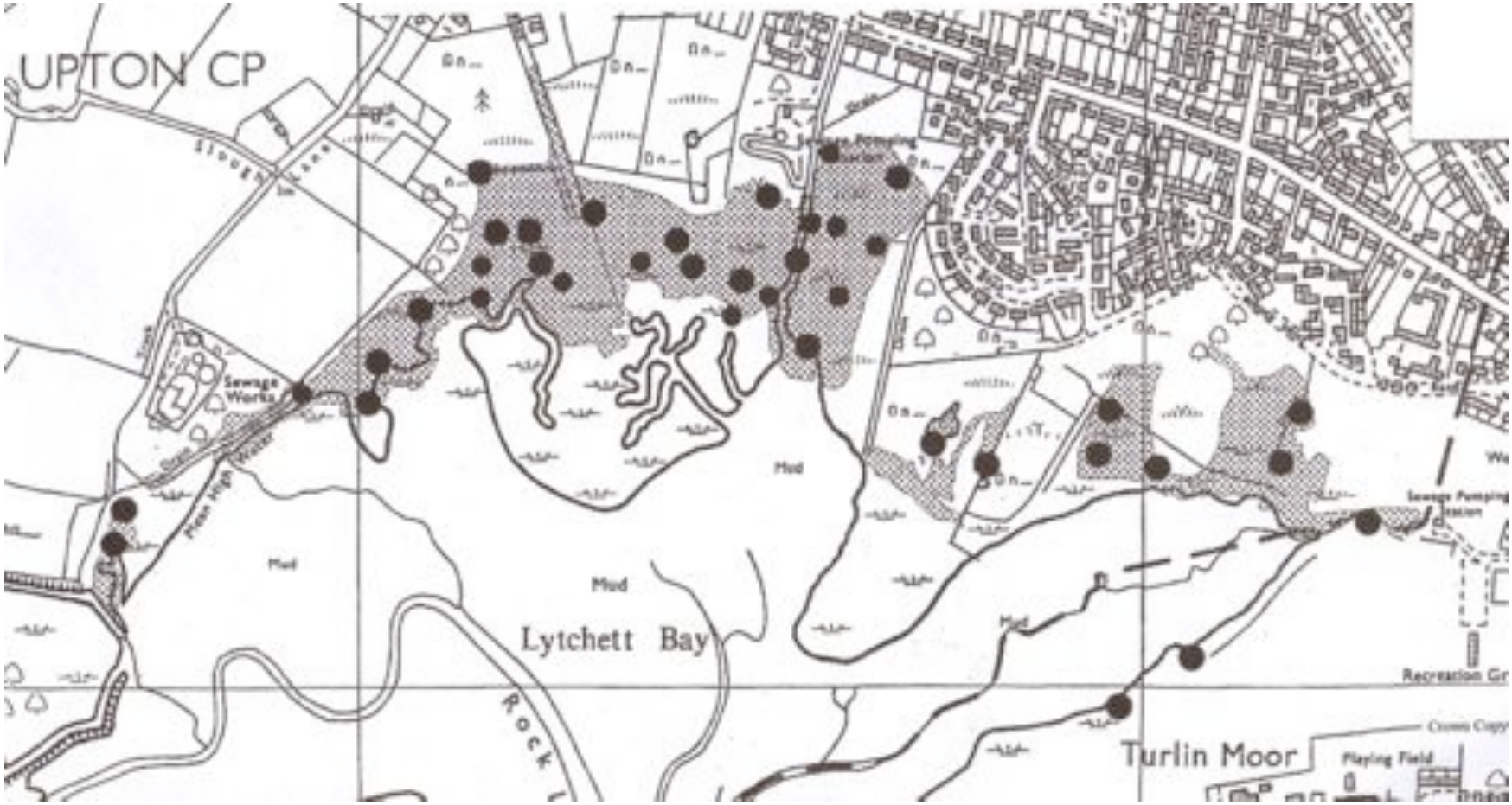

Fig 3. Distribution of water rails at Lytchett Bay 2004 (Large dots: pairs. Small dots: single birds)

East Holton (Holton Lees)

Date surveyed: April 27th 29th and 30th
Habitat: Tidal reedbed 1.7 – 20% saline (2001)
Area: 35.26 ha

37 pairs and 15 singles compared to 41 pairs and 20 singles in 2004.
Highest pair density along the landward edges of the reedbeds bordered by carr scrub and bog.
Some territories here are very small. Away from these areas much more thinly distributed and a much higher percentage of single birds recorded.
Some pairs present in the shorter reed where there were lots of boggy waterlogged deer tracks.
Distribution patterns largely similar to 2004 which also noted concentrations along the landward edges of the reedbed. Four pairs in far north west reedbed compared to 1 pair in 2004.

Fig 4. Distribution of water rails at East Holton (Dots: pairs. Circles: single birds)

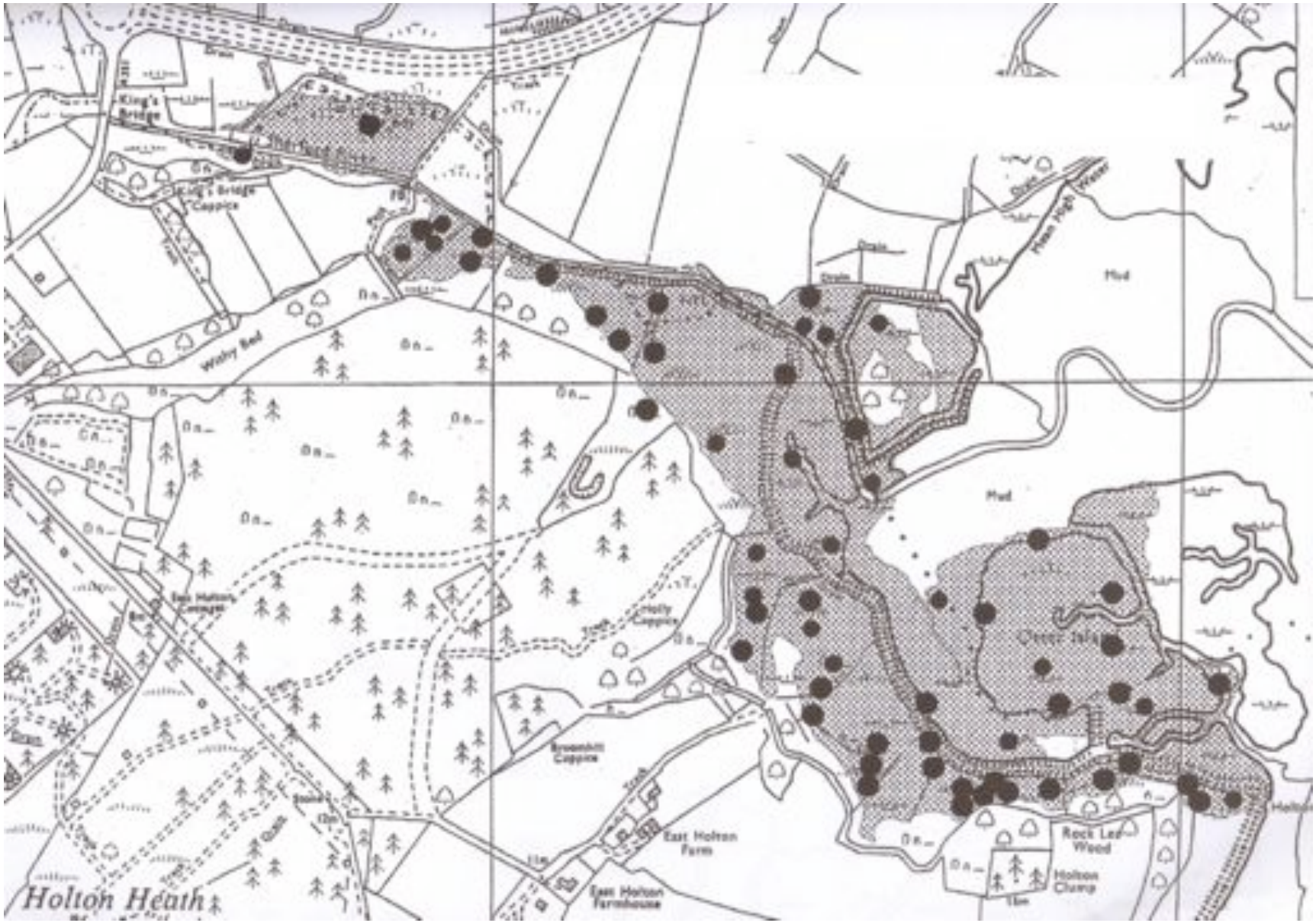

Fig 5. Distribution of water rails at East Holton 2004 (Large dots: pairs. Small dots: single birds)

Holton Heath

Date surveyed: April 30th May 1st
Habitat: Tidal reedbed
Area: 17.31 ha

13 pairs and 25 singles compared to 32 pairs and 6 singles in 2004.
Distribution biased towards landward edge of reedbed where it where it backs onto carr scrub.
Very similar distribution of birds for both surveys. Total number of sites (pairs and singles) remarkably are exactly the same for the 2 surveys ie 38 in 2013 and 38 in 2004.
However pair birds in 2004 replaced by single bird calls in 2013 with recorded pairs down on 2004 by 58% and recorded single birds up by 317%
This is thought to be a consequence of the lateness of the survey date which is discussed fully from page 49.
Both surveys recorded birds right up to the seaward side of the reedbed in the northern part of the area but only one registration on the whole of the seaward side of the southern part.

Fig 6. Distribution of water rails at Holton Heath (Dots: pairs. Circles: single birds)

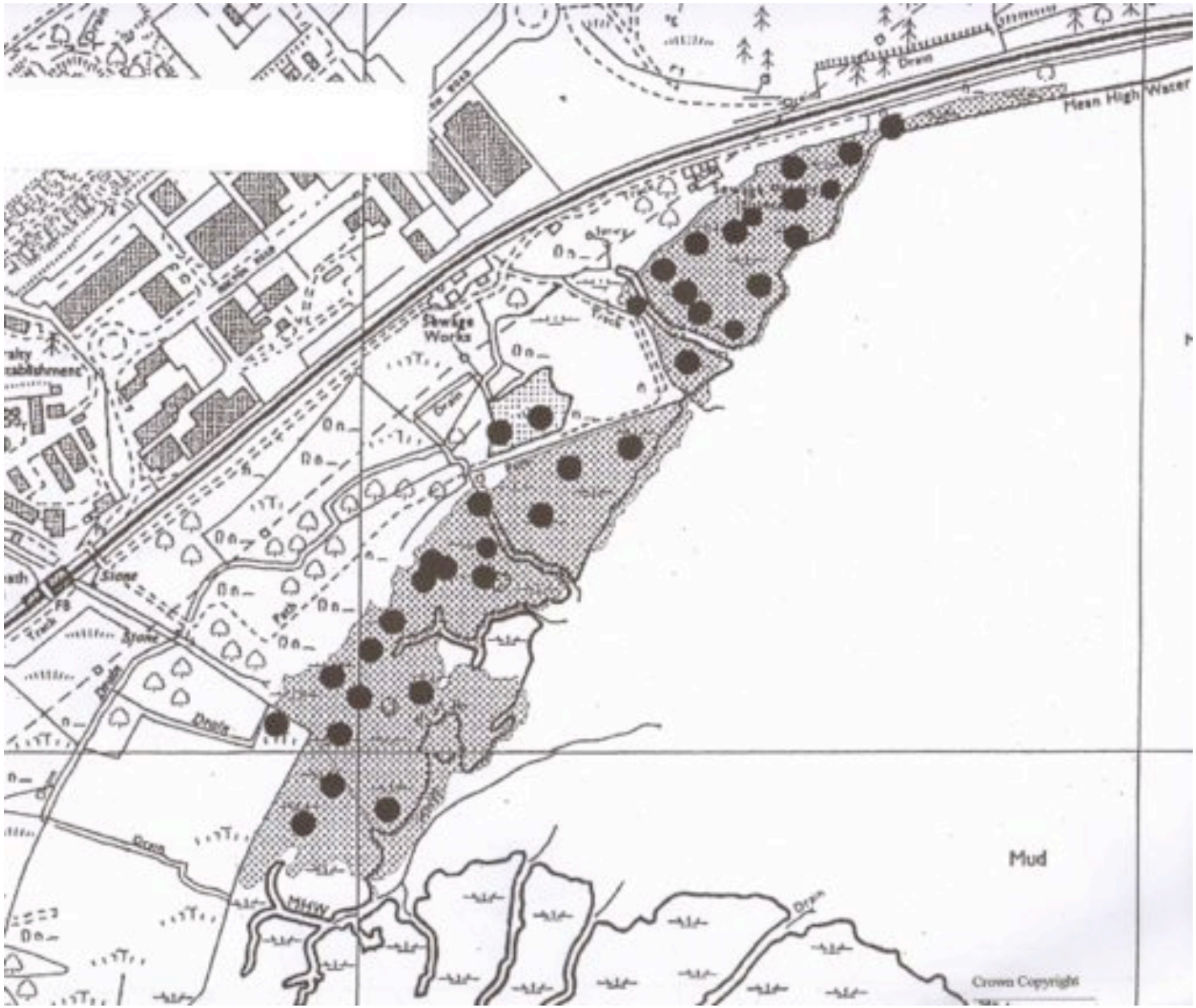

Fig 7. Distribution of water rails at Holton Heath 2004 (Large dots: pairs. Small dots: single birds)

Keysworth reedbed

Date surveyed: Apr 21st May 1st
Habitat: Partly tidal, slightly saline, up to 2.7% (2001)
Area surveyed: c19.2 ha

Only the main reedbed was surveyed.
In this area 26 pairs and 21 single birds were recorded compared to 24 pairs and 3 single birds in 2004.
Occupied sites however up 74% from 27 to 47.
Concentrations of pairs on landward edge of reedbed bordered by carr scrub with open patches.
Distribution similar to 2004 except for a much higher density of pairs at the western end where there was evidence of particularly high usage by deer resulting a myriad of flooded boggy tracks and bare areas.
Two reasonably large areas with no birds in areas of short reed. Not all of these areas were able to be covered to within 100 metres, however there were no birds heard at short range either.

Buck's Cove and Shag Looe not surveyed.

Fig 8. Distribution of water rails at Keysworth reedbed. (Dots: pairs. Circles: single birds)

Fig 9. Distribution of water rails at Keysworth reedbed 2004 (Large dots: pairs. Small dots: single birds)

Wareham Meadows (NW)

Date surveyed: April 21st

Habitat: Slightly saline reedbed, unimproved grass with slightly saline reedy ditches.

7 pairs and 6 singles. Not covered in 2004.
Fairly evenly distributed along the man made ditches which can be just made out on the map.
The pairs not in ditches were in reedbed areas with evidence of quite heavy deer use.

Fig 10. Distribution of water rails at Wareham Meadows (NW). (Dots: pairs. Circles: single birds)

Swineham Point

Date surveyed: April 20th
Habitat: Tidal reedbed, up to 16.5% saline with regular total inundation (2001)
Area: 9.01 ha

3 pairs and 8 singles compared to 12 pairs and 6 singles in 2004 representing a 75% drop in recorded pairs.
Only 1 pair on the seaward side of the point where there were 8 in 2004.
Other 2 pairs recorded on the northern boundary, where there were none in 2004.
Quite a bit of change here. Full discussion on page 49

2 singles recorded on the southern edge of Swineham Gravel Pits

Fig 11. Distribution of water rails Swineham Point. (Dots: pairs. Circles: single birds)

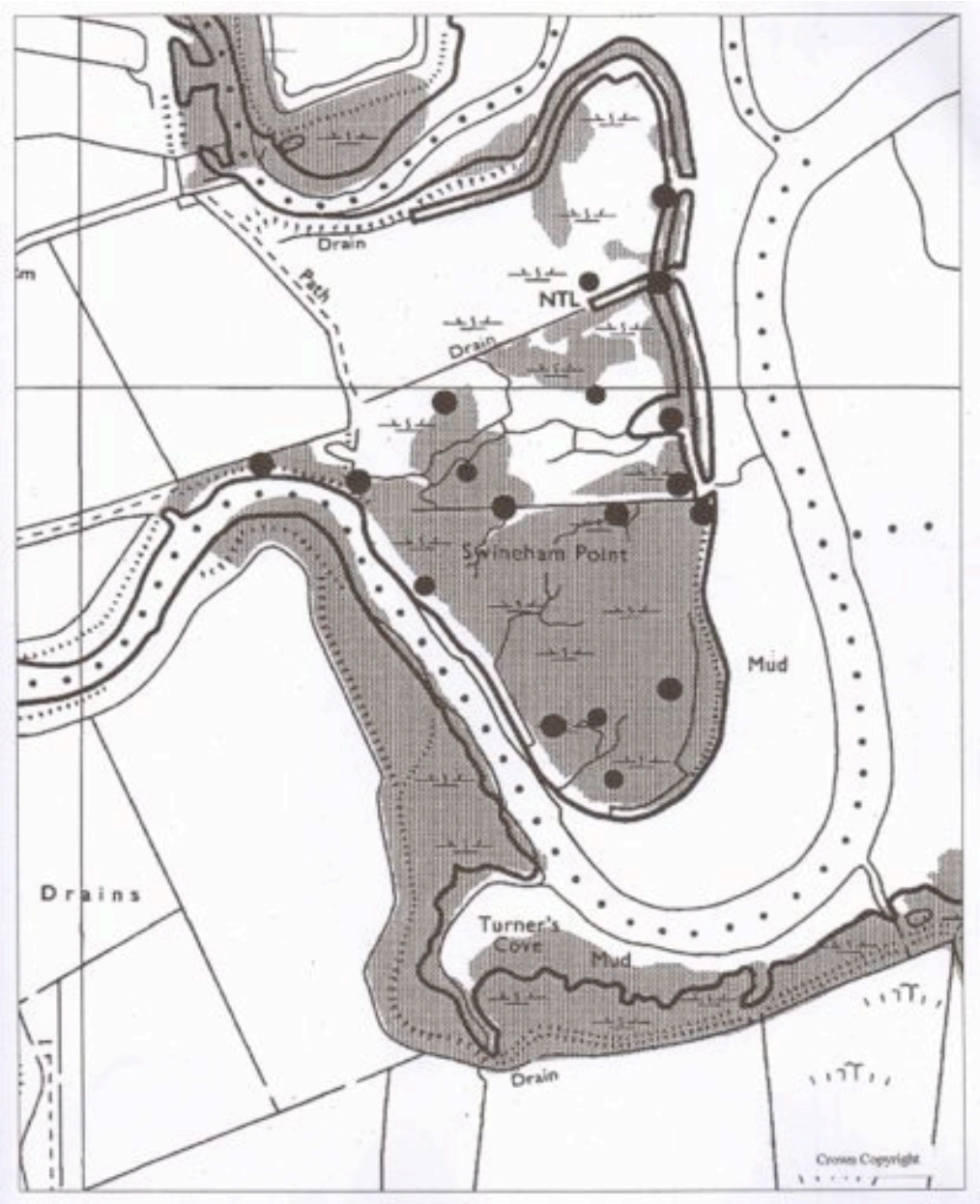

Fig 12. Distribution of water rails at Swineham Point 2004 (Large dots: pairs. Small dots: single birds)

The Moors

Date surveyed: April 7th
Habitat: Tidal reedbed
Area: 22.53 ha

This one was a real shocker. Only 1 pair and 4 single birds were recorded, compared to 25 pairs and 8 singles in 2004.
The only pair being tucked away in the only bit of mixed habitat on the landward side of the reedbed. Full discussion on page 49.

A pair was also recorded to the south of the main reedbed behind the sea wall. Also a single bird in juncus further south.

Fig 13. Distribution of water rails at The Moors. (Dots: pairs. Circles: single birds)

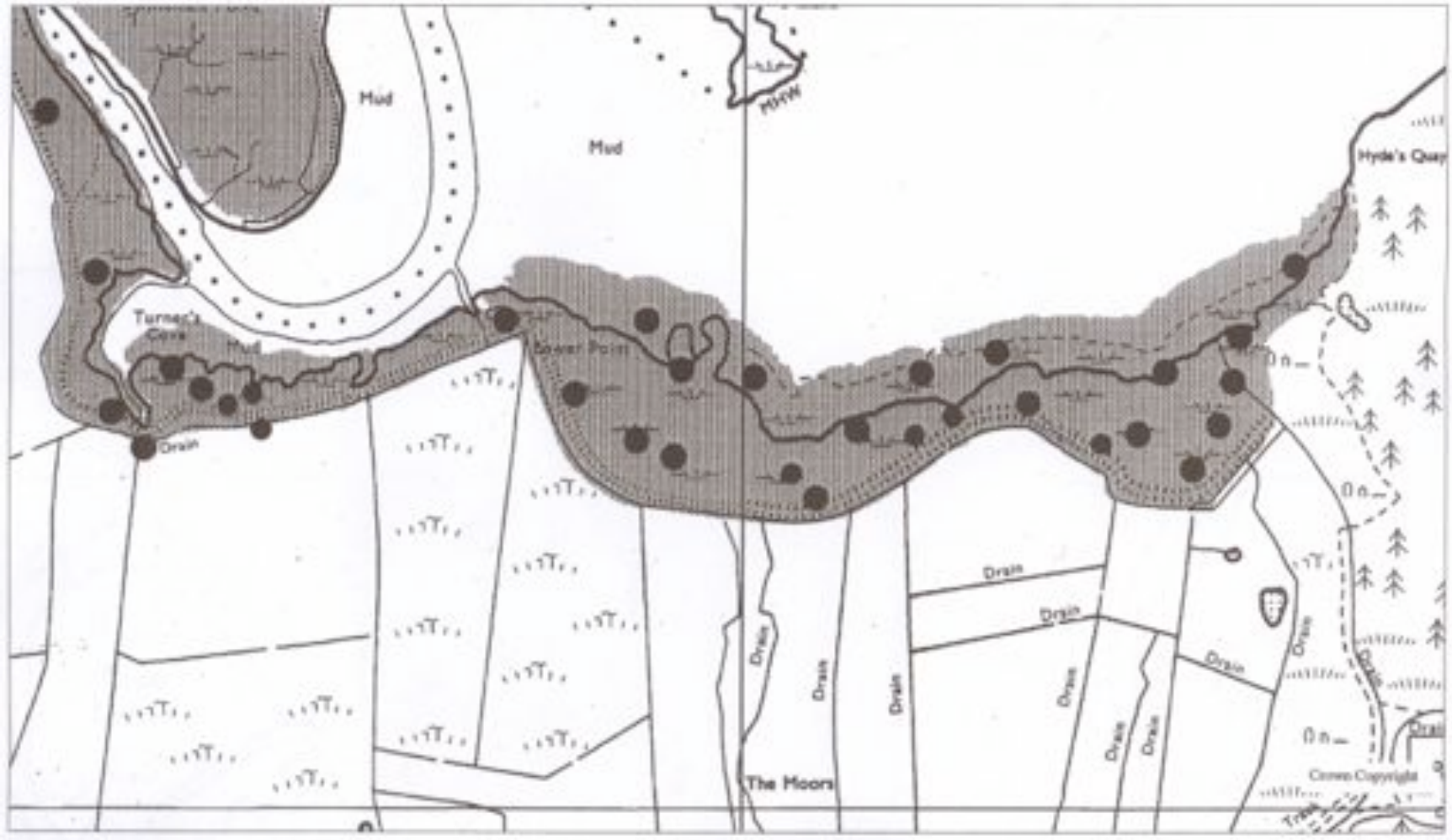

Fig 14. Distribution of water rails at The Moors 2004 (Large dots: pairs. Small dots: single birds)

Slepe

Date surveyed: April 13th
Habitat: Freshwater in north-west, saline in east and south (2001)
Area: 12.77 ha

11 pairs and one single bird recorded in area mapped by Cook (2001), compared to 8 pairs and 3 singles in 2004.
Also 4 pairs recorded in additional area to south east, compared to 1 pair and a single in 2004.
Net result a 67% increase in recorded pairs.

Fig 15. Distribution of water rails at Slepe. (Dots: pairs. Circles: single birds)

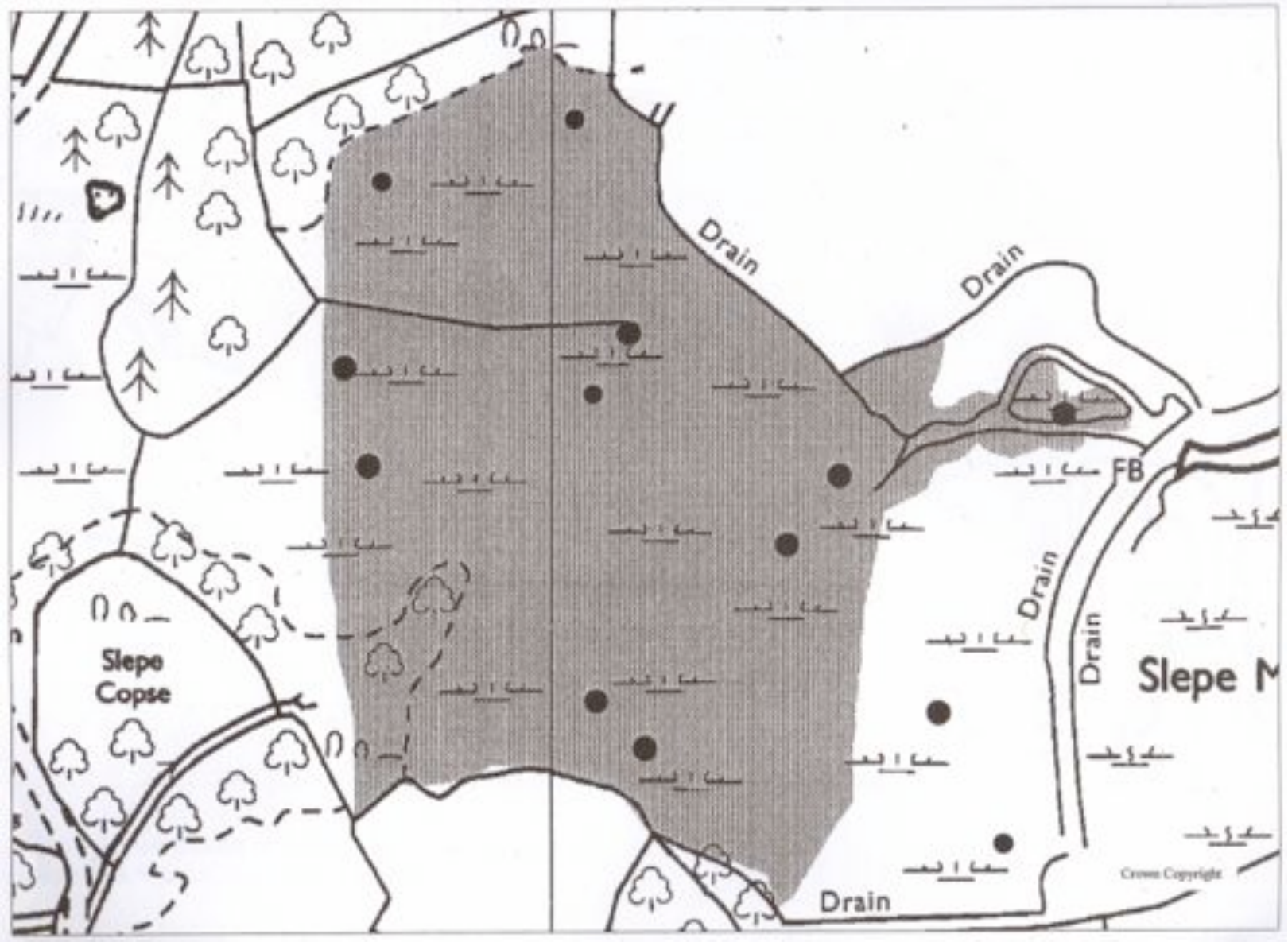

Fig 16. Distribution of water rails at Slepe 2004 (Large dots: pairs. Small dots: single birds)

Salterns

Date surveyed: March 29th
Habitat: Mainly freshwater, saline in south and east (2001)
Area: 10.77 ha

4 pairs and 5 single birds recorded compared to 7 pairs and 2 singles in 2004.
Total number of sites (pairs and singles together) being the same for both surveys.

Fig 17. Distribution of water rails at Salterns. (Dots: pairs. Circles: single birds)

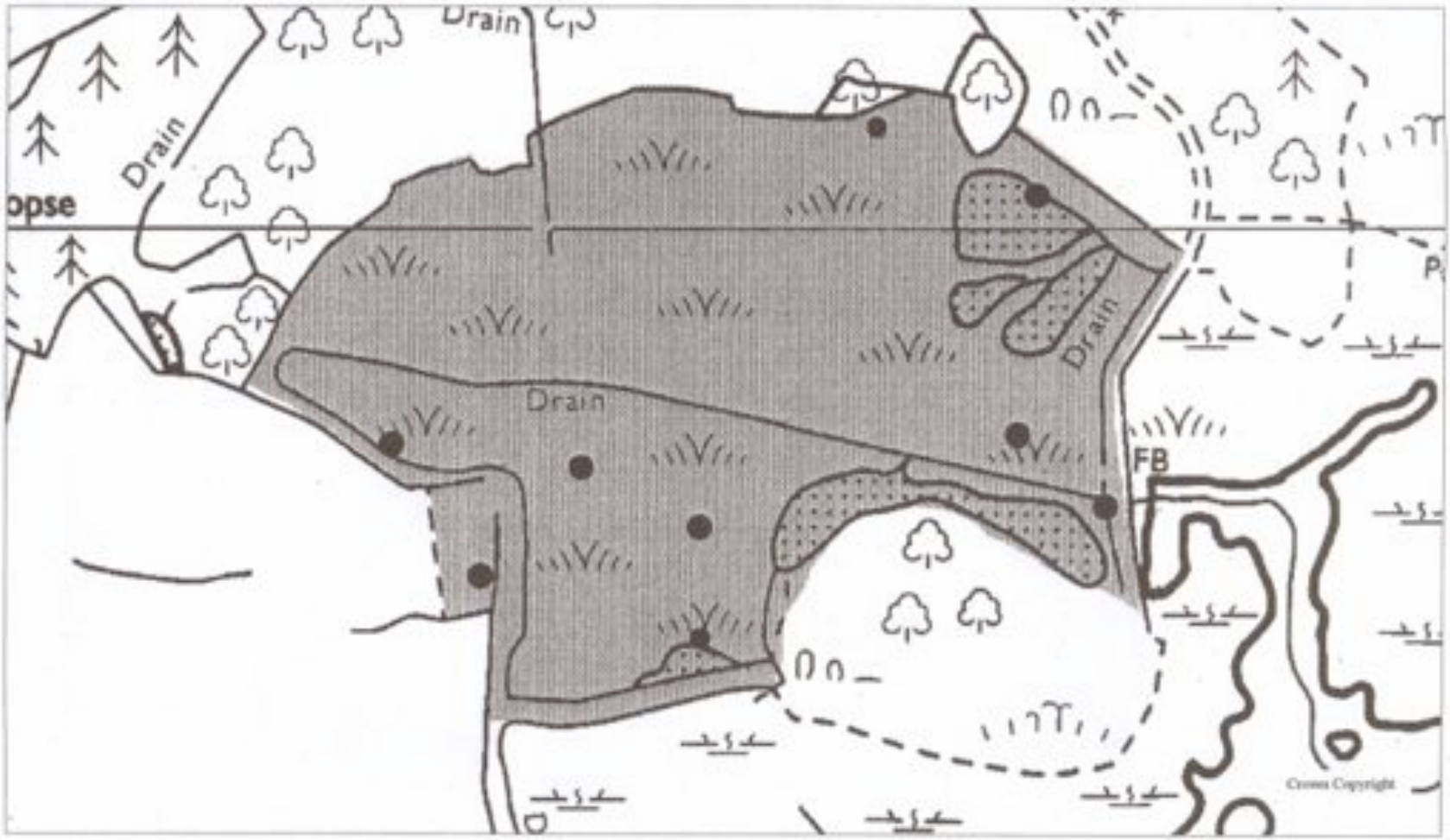

Fig 18. Distribution of water rails at Salterns 2004 (Large dots: pairs. Small dots: single birds)

Middlebere

Date surveyed: March 28th
Habitat: Saline reedbed, freshwater at southern end (2001)
Area: 7.1 ha

11 pairs and 3 single birds recorded compared to 7 pairs and 0 singles in 2004. A 57% increase in recorded pairs.
A reasonably high density of 1.55 pairs per hectare being helped by 4 pairs cramming themselves into a tiny area of reed at the northern end. The density figure is actually a little higher than published as the area at the extreme southern end, marked and measured as reedbed in 2001 wasn't reedbed in 2013. (Area shaded green on Fig.20).
Distribution of birds pretty similar to 2004. Extra birds gained in north west part of recording area due to increased effort. (It was noted in 2004 that this area was not effectively surveyed due to access problems).

Fig 19. Distribution of water rails at Middlebere. (Dots: pairs. Circles: single birds)

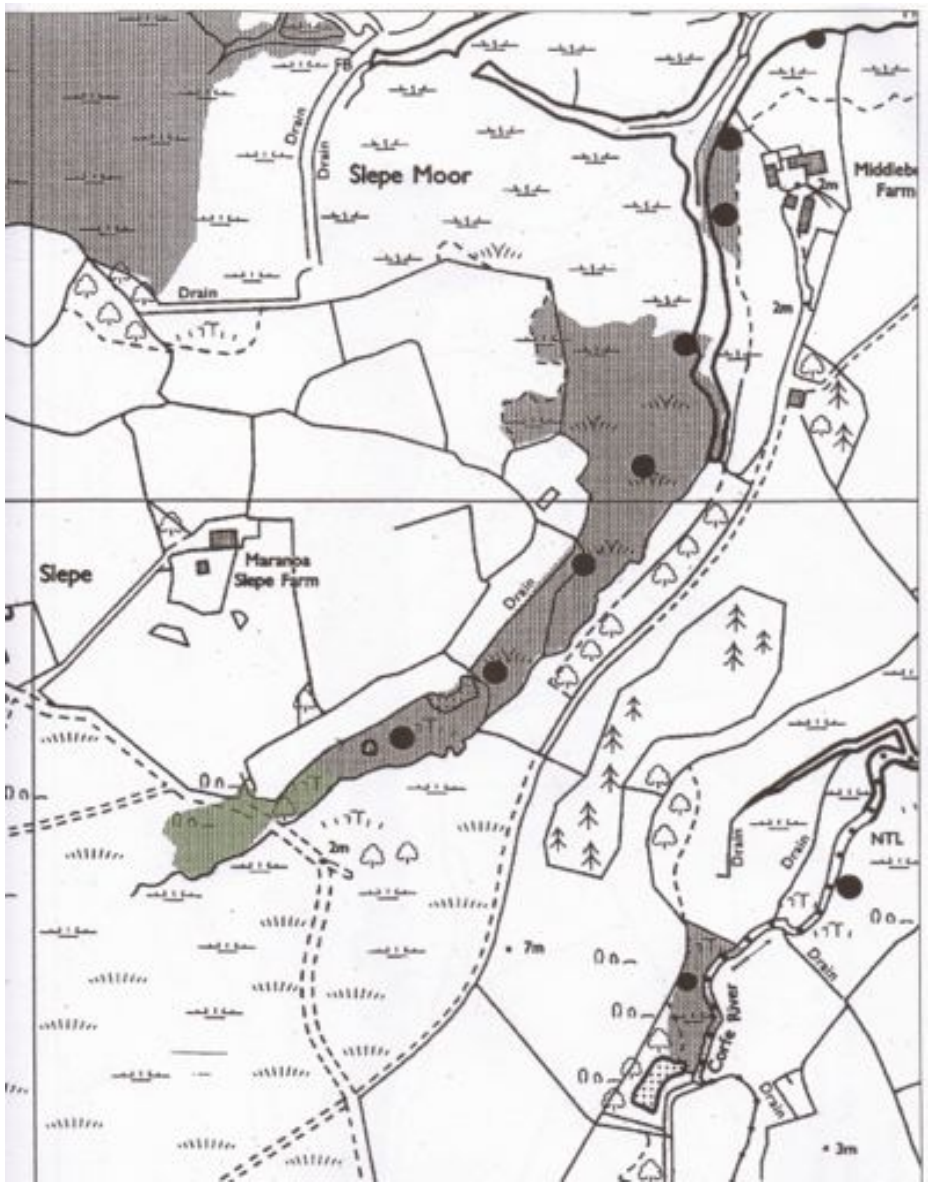

Fig 20. Distribution of water rails at Middlebere 2004 (Large dots: pairs. Small dots: single birds)

Middlebere Lake

Date surveyed: April 19th
Habitat: Tidal reedbed
4 pairs recorded. Not surveyed in 2004.

Fig 21. Distribution of water rails at Middlebere Lake. (Dots: pairs. Circles: single birds)

Wych Lake west

Date surveyed: March 28th
Habitat: Freshwater based reedbed (2001)
Area: 0.61 ha

No pairs or singles recorded here.

Other parts of Wych Lake west

Date surveyed: March 28th Apr 19th
Habitat: Tidal reedbeds

Other nearby small tidal reedbeds were investigated along the length of the western arm of Wych Lake with 7 pairs being recorded. Apart from one area immediately to the west of Wych Lake west reedbed, none of these areas were surveyed in 2004.

Fig 22. Distribution of water rails at Wych Lake west. (Dots: pairs. Circles: single birds)

South Middlebere

Date surveyed: March 27th April 19th
Habitat: Freshwater reedbed
Area: c5.9 ha

During this survey it was found that the reedbed area didn't match that described by Cook (2001). The area in question was significantly large to affect density figures so it was decided to re-measure the reedbed area approximately using maps.
The new area was measured at 5.9ha, 40% less than 2001.

12 pairs and 7 single birds recorded compared to 7 pairs and 1 single bird in 2004.
This represents a 71% increase in recorded pairs. Comparing the distributions, the main increase is in the western half, which had a relatively low density in 2004.

The density of 2.03 pairs per hectare was the highest recorded in the harbour.

The areas shaded green on Fig 24 is given as reedbed according to Cook (2001) but it wasn't in 2013. It was noted at the time by Cook to be suffering from scrub encroachment.

Fig 23. Distribution of water rails at South Middlebere. (Dots: pairs. Circles: single birds)

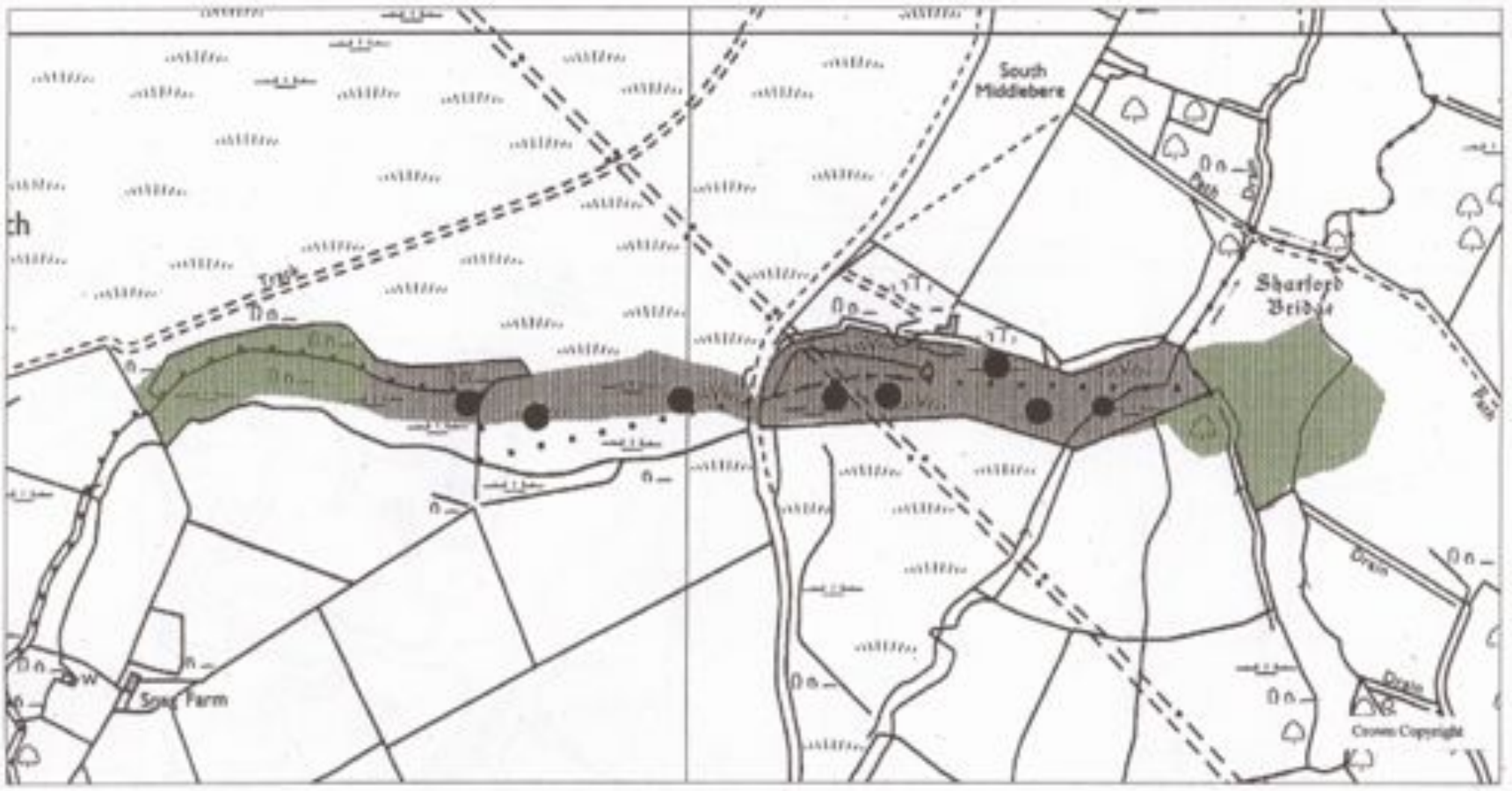

Fig 24. Distribution of water rails at South Middlebere 2004 (Large dots: pairs. Small dots: single birds)

Wych Lake east

Date surveyed: April 6th
Habitat: Tidal reedbed
Area: 1.57 ha

3 pairs and 2 singles compared with 3 pairs and 1 single in 2004.
Density at 1.91 pairs per hectare

Also 1 pair and 1 single bird recorded at Wytch Causeway (bottom of map). Two pairs there in 2004.

Fig 25. Distribution of water rails at Wych Lake east. (Dots: pairs. Circles: single birds)

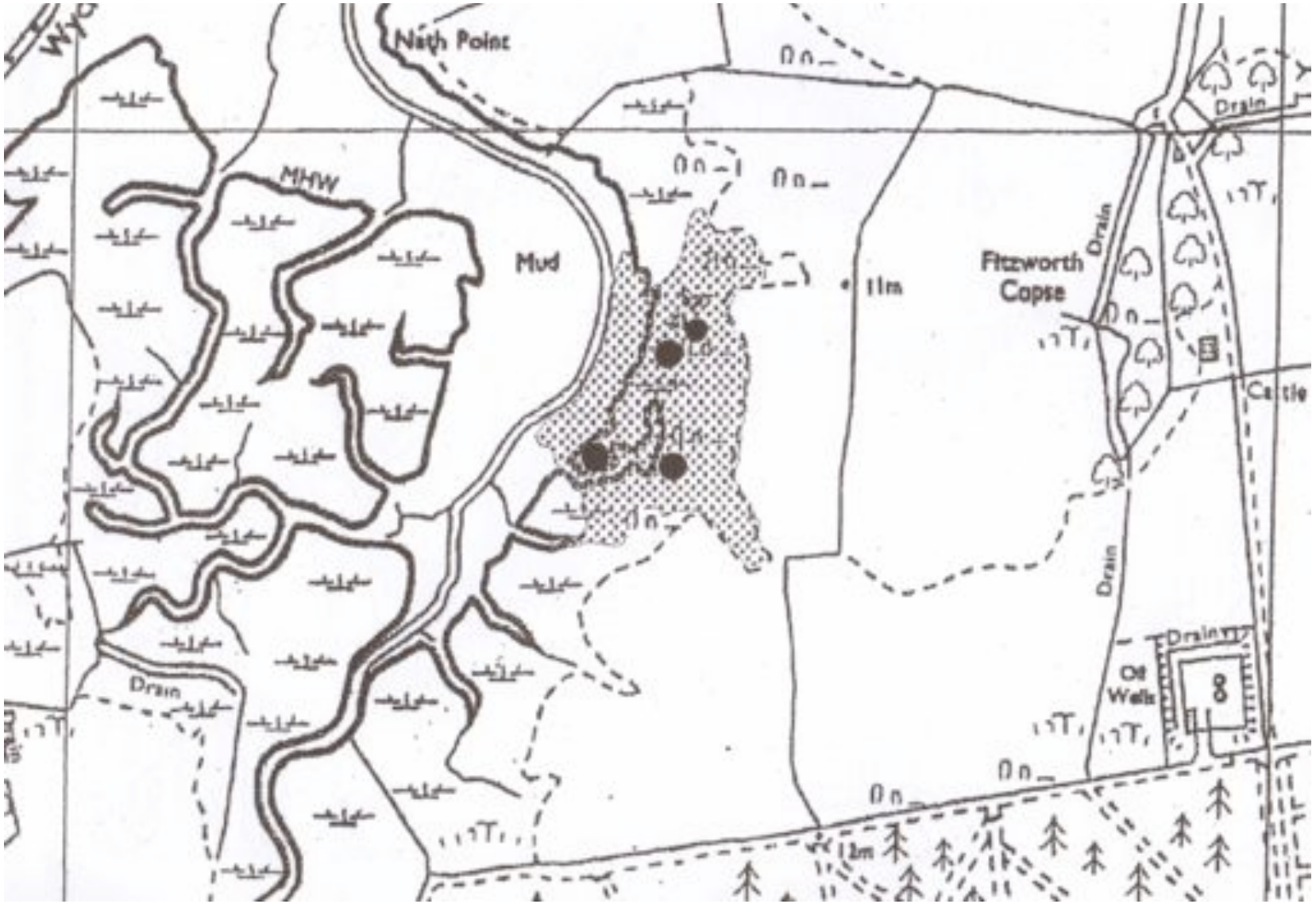

Fig 26. Distribution of water rails at Wych Lake east 2004 (Large dots: pairs. Small dots: single birds)

South Haven, Studland

Date surveyed: April 19th
Habitat: Brackish reedbed

Small reedbed, which apart from the far northern corner was inundated to at least a couple of feet of water.
One single bird recorded in the far northern corner.
Not surveyed in 2004.

Fig 27. Distribution of water rails at South Haven, Studland. (Dots: pairs. Circles: single birds)

Upton Country Park (Holes Bay)

Date surveyed: Apr 28th
Habitat: Tidal reedbed
2 pairs and 2 single birds recorded. Not surveyed in 2004.

Fig 28. Distribution of water rails at Upton Country Park. (Dots: pairs. Circles: single birds)

Discussion and comparison to 2004.

Areas with the highest pair counts were East Holton, Lytchett Bay and Keysworth.

Areas with the highest recorded densities of pairs were the landward edges of reedbeds bordered by carr scrub and bog, in areas such as East Holton, Keysworth and South Middlebere.
Also pockets of higher density areas in reedbeds with evidence of quite heavy deer use, such as the western end of Keysworth where there was a myriad of flooded and boggy tracks interspersed with bare areas.
These habitats were also found to be the more densely populated areas in 2004. It is proposed that habitat diversity is preferred to large uniform areas with carr scrub and Sika deer creating this diversity. A full discussion can be found in the 2004 report, (Chown 2004).

Generally, the seaward sides of reedbed areas were much less densely populated, which was also found in 2004. This is thought to be due to the reduced fresh water influence and being more prone to flooding by the tide.

In 2004, Swineham Point had a healthy population of pairs including toward the seaward side of the reedbed however this survey recorded a significant drop in numbers, with no pairs at all on the eastern seaward edge.
The drop in recorded pairs was even more dramatic at The Moors with only one pair recorded compared to 25 in 2004, indicating a catastrophic change in this site's suitability for water rails.

It has become apparent since the surveys of Moyes *et al* (1997) and Chown (2004) that water rails, as well as using freshwater reedbeds, can also flourish in tidal reedbeds with certain provisos.
Moyes *et al* (1997) in his survey of the Tay estuary found that breeding water rails were as numerous in brackish areas as freshwater ones. However, they avoided establishing territories in areas which experienced daily tidal flooding.

The last sentence in that paragraph may go some way to explaining what was found at Swineham Point and in particular The Moors. Given these sites proximity to the River Frome and the unprecedented levels of rainfall that occurred in the year preceding the survey, it may well be that these areas have recently been inundated to such a degree as to make them unviable for breeding water rail, perhaps as a result of a reduction in prey availability (possibly through increased flow of saline water into the reedbeds), or flooding of potential nest-sites.
Evidence of high levels of erosion on the eastern edge of Swineham Point was noted by Cook in his reedbed survey of 2001. Further evidence can be seen on the inter-tidal mud where posts are visible which were once at the spartina edge.
Over-use by Sika Deer could be an issue particularly at the Arne end of The Moors where there are large numbers, however this wouldn't account for the complete absence of birds where the reedbed was still in good condition.

Marsh Harriers, which this summer have set up a territory on the end of Swineham Point, are perhaps another consideration. The arrival of a new top predator which has a liking for water rails, one would assume would have a certain impact on numbers and also make it a less desirable area to set up a territory. (Ian Alexander pers comm).

Perhaps it is a subtle combination of all of these things. The date of the survey (which is discussed in the next section) was considered not to be a factor.
Whatever the problem is, it is not affecting any of the other tidal reedbed areas.

Areas with the most significant increases in pairs recorded compared to 2004 were South Middlebere (up 71%), Slepe (up 67%) and Middlebere (up 57%). Interestingly, these are some of the areas with the most freshwater influence, particularly South Middlebere which is wholly freshwater.
Perhaps some of these birds are refugees from Swineham and The Moors.

It is known that water rails, although they will use drier areas, have a very strong preference for wetter areas. Wilson and Homer (in prep). Perhaps the higher water levels have had a positive effect in these and other areas, providing flooded boggy areas where it was previously too dry, facilitating a redistribution of birds.

Dates of survey

In the UK, water rails lay their clutches from late March onwards (Cramp and Simmons 1979). It is known that in some cases when incubation has started only one member of a breeding pair will respond to a recording, Wilson and Homer (in prep). This clearly has implications when trying to record the number of breeding pairs.

In light of this, Chown (2004) noted that it was likely that a proportion of the single birds recorded in 2004 were in fact members of breeding pairs, perhaps especially in the reedbeds covered after early April. The 2004 survey started on 27th March and was completed by 20th April. With this in mind, this survey was planned to finish no later than 15th April

Because of the consistent bad weather with associated strong winds, the survey was severely delayed. Thus a large majority of the survey was undertaken after 15th April, with potentially major implications regarding responses of birds.
However, this was no ordinary spring and given that the breeding season of virtually all birds was well behind schedule, it was felt that results would still be representative.

As hoped for, bird responses were good, with many recording areas showing comparable results if not an increase in pairs from the 2004 survey.
Up until mid-April most responses were still strong, but as the survey moved into the last week of April things were not quite so clear-cut and a few modifications to the methodology were necessary. More distant birds were much less inclined to respond, so all areas where possible were now approached to within 75 metres. In addition, certain birds needed further cycles of playback to respond as a pair. Birds calling apart with weak responses were given longer to join together to sharm. and certain birds needed to be approached nearer to elicit a sharm response.
If for example, faced with a strongly calling single bird, rather than moving on as the methodology suggested, the tape was played a couple more times. With careful attention and if at a reasonable distance, a second bird would often give itself away with a few very

quiet half-hearted grunts or such like. With a little more perseverance this often resulted in a very brief half-hearted sharm between the two birds, particularly if the observer moved nearer to the calling female. These could well have been sitting birds so this method was used with extreme caution so as not to cause stress or upset. At all times, the welfare of the bird was the first consideration and if a sharm was not immediate at this point, the observer moved on.

The last couple of days of the survey saw a more noticable downturn in pair responses. Many pairs in densely populated areas were still responding at short range, but away from these areas the calls were mostly single birds with only the occasional pair response. The methodology was once more tweaked and areas were approached where possible to within 50 metres. When moving just 50 metres on, the observer had to be even more vigilant in making sure he wasn't being followed. In the more densely populated areas this wasn't such a problem as a sharming pair often elicited a response from the neighbouring pair such that they could be heard simultaneously. A strongly calling male, however, in a larger territory would invariably follow and could often be heard moving through the reeds.
Sometimes a response from the next stop was quite quick and it seemed unlikely that the bird would have moved such a distance in such a short space of time. However on occasion these birds could be observed moving through the reeds, and believe me they can travel! In more open areas they will combine sprinting with very short flights to get to where they want to be without being seen.
A further complication cropped up when it was noticed that the occasional bird followed the observer to the next stop whilst the recording was switched off and was there waiting to respond immediately when the next cycle of recordings were played!.

The last three surveys were E. Holton, Keysworth and Holton Heath.

E. Holton

The majority of pairs were probably detected here. Much of the area was approachable to within 50-70 metres and responses were still strong in the densely populated areas with one sharming pair often setting off another pair who were often only a few metres away.
Away from these areas, there was a higher proportion of single calling birds, some probably were breeding birds but many were half-hearted responses in sometimes less than desirable locations and may well have been genuine single birds.
Occupied sites (pair and single birds) were down on 2004 and there were certainly areas with no birds or indeed no reed which held birds in 2004. Sika Deer do thrive here but it must be mentioned that although the presence of Sika Deer is thought to benefit water rail, 'over use will eventually reduce its value to reedbed specialists to nothing'. Cook (2001). In his reedbed survey, Cook mentions areas of extensive deer damage at this site in 2001.

Keysworth

Similar amount of pairs recorded to 2004, but a significant increase in single calling birds with 21 recorded, compared to just 3 in 2004 resulting in a 74% increase in sites (pairs and single birds) since 2004.
Away from the densely populated areas at the landward edge of the reedbed, many quite close birds were not responding as pairs. It seems very likely that the survey date was a factor here, with the majority of the area being covered on 1st May compared to 31st March and 8th April in 2004.
The implication being that pair numbers were actually significantly up on 2004. With this assumption, one can postulate that many of these birds are probably refugees from The Moors and Swineham .

(N.B. The area in the west corner with high density of pairs was covered on 21st April when pairs were more willing to respond).

Holton Heath
The last area to be completed on 1st May, with pair numbers compared to 2004 significantly down. Here responding single birds, often in quite close proximity, outnumbered pairs.
Remarkably, there were exactly the same number of site registrations for both surveys but where there were pair birds in 2004 there were now only single birds responding, strong evidence perhaps, of a silent partner.

The flipside of the late breeding season is that one must therefore assume that some of the single birds registered at the very beginning of the survey more than likely involved some lingering wintering birds. This in itself wouldn't have affected breeding pair counts but the very cold temperatures during a couple of these surveys may have resulted in some pair birds being unresponsive and not sharming. The eastern half of South Middlebere for instance was covered on the first date of the survey, 27th March which was pretty cold with even the odd snow flurry. Four pairs and 7 single birds were recorded compared with four pairs and only 1 single bird in 2004.
In contrast the western half was covered on 19th April, probably about the peak time given the lateness of the season and recorded 7 pairs and 2 single birds. In fact a quick visit back to the eastern half recorded a sharming pair where two single birds were noted on the first visit, unfortunately there was not enough time to do the whole eastern half again which would have been interesting.

Conclusions

Despite all the difficulties, it is believed that a fair representation of the breeding population of water rails within Poole Harbour has been achieved, if one assumes that that some of the single bird registrations late on in the survey are indeed pair birds (for the reasons given earlier).
In fact, the number of sites recorded was extremely similar to that found in 2004 suggesting an unchanged overall population with some redistribution.

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Appendix 1. Times and conditions of survey

Lytchett Bay	23 April	06.10 – 11.15	0/8cc, dry, warm, wind F1-2
	24 April	06.05 – 11.25	8/8cc, low cloud, dry at start, hint of drizzle, wind F2-3
	25 April	06.00 – 09.25	Fog at start, 7/8cc, dry, wind F0
East Holton (Holton Lee)	27 April	06.15 – 09.00	Cold, 0/8cc, wind 2-3 at start, later 4+ when survey ended
	29 April	07.00 – 11.10	0/8cc, dry, wind F1 increasing 3-4 later
	30 April	06.30 – 09.25	0/8, dry, wind F2-3
Holton Heath	30 April	06.50 – 13.00	0/8, dry, wind F2-3
	1 May	06.30 – 10.45	0/8, dry, wind F1-2 cold at start
Keysworth	21 April	10.00 – 11.30	4/8cc, dry, wind F1-2, later increasing 2-3
	1 May	06.05 – 10.05	Cold at start, 0/8cc, dry, wind F1-2
Swineham Point	20 Apr	05.45 – 11.00	Dry, bright spells, wind F1 increasing F3 later
The Moors	7 Apr	06.50 – 11.30	Cold at start, dry, 3/8cc, wind F1 increasing 3-4 later
Slepe	13 Apr	06.40 – 09.45	4/8cc, light winds at start increasing F3, some drizzle
Salterns	29 Mar	17.30 – 19.45	8/8cc, cold, dry, wind F2-3
Middlebere	28 Mar	05.40 – 08.30 09.00 – 10.35	Cold, dry, 0/8cc at start, light winds, increasing to F3 later
Wych Lake west	28 Mar	17.45 – 20.00	Cold, dry, 6/8cc, wind F3
South Middlebere	27 Mar	17.15 – 19.25	Cold, 8/8cc, light winds, occasional light snow
	19 Apr	07.40 – 10.00	4/8cc, dry, wind F3-4
Wych Lake east	6 Apr	18.55 – 20.50	Cold, dry, F2
Upton Country Park	28 Apr	09.15 – 11.00	2/8cc, dry, wind F0-1
South Haven, Studland	19 Apr	06.40 – 07.20	4/8cc, dry, wind F3-4
Middlebere Lake	19 Apr	10.45 – 12.30	4/8cc, dry, wind F3-4
Wareham Meadows (NW)	21 Apr	06.00 – 09.50	3/3cc, dry, wind F0-1, increasing 1-2 later
Turlin Moor (Lytchett Bay)	28 Apr	07.30 – 08.30	2/8cc, dry, wind F0-1