Water Rail survey in Kent: 2003 & 2005

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Introduction

The Water Rail *Rallus aquaticus* is a local breeding species in Kent and throughout Britain. An estimate of the wider population, made in the New Atlas and covering 1988-91, was that there were 450-900 pairs in Britain and perhaps twice as many in Ireland, although it was conceded that these estimates might well be minimal. In Kent, the 1988-94 atlas survey found the species in 37 tetrads and suggested that the population was in the around 75-100 pairs, based on atlas coverage and counts of calling birds in a few areas. In Britain, though not in Kent, there had been a marked contraction of range since the previous atlas, and consequently, the species is on the UK Amber list. It is also listed as a grade 3 species in the Kent Red Data Book, because of its small British population and the fact that Kent is thought to support a significant proportion of the national total.

Both nationally and in Kent, the difficulty of making accurate assessments of the numbers of Water Rails was stressed. The population estimates were based on assumptions of the numbers likely to occur within the average 10km square or tetrad, rather than on systematic surveys. Since then, a standard method of censusing Water Rails has been developed (Gilbert *et al*. 1998), based on the use of tape-playback, enabling the collection of more accurate results in a repeatable way.

The Kent survey was organised by the KOS to provide, for the first time, a population estimate of the whole county based on systematic field survey, and to test the hypothesis that we have previously greatly under-estimated the county population.

Survey methods

The survey aimed to visit all sites where the species was known or suspected to breed, and also to visit a selection of other sites containing potentially suitable habitat to "check" whether any Water Rails were present. It was based on the methodology of Gilbert *et al*. (1998), but with some modifications, notably that in most cases only one surveyor was used at each site. The majority of coverage was achieved in 2003, but a few additional areas were surveyed during 2005.

One, two or in a few cases three visits were made to each site, mostly between late March and late April and in suitable weather conditions: mild and as calm as possible. The survey was carried out either in early morning after sunrise or just after dusk. Surveyors were provided with a continuous loop-tape of the territorial calls of Water Rails. At each survey point, the tape was played for 60 seconds followed by a period to listen for responses for 60 seconds; in the case of no response, the tape was then played again for 30 seconds followed by listening for 30 seconds; and if no response was gained the latter 30 second period was repeated. The tape was played every 80-100m along the boundary of the reed-bed or other habitat.

Responses of either sharming given by a duetting pair or calls from a single bird (frequently indicating the non-incubating bird of a pair) were noted onto a map of the survey site. Lack

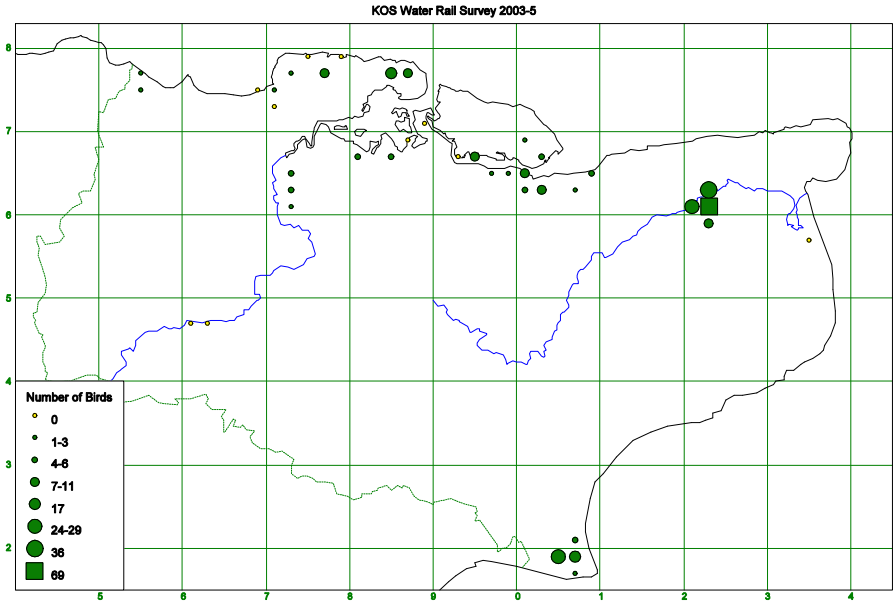
of any response to the tape sequence described above was assumed to mean that no Water Rails were present.

The timing of survey visits presents a problem. As might be expected of a bird adapted to wetlands and floodplains, Water Rail has a variable breeding season: birds can be incubating by late March but alternatively nesting can be delayed if a site is under water. Gravel pits with relatively stable water levels can be surveyed on earlier dates than more natural marshlands, but attempting the survey too early can result in late migrants responding to tapes and giving false results.

Results

Coverage was achieved in 40 tetrads (out of about 1,000 in Kent) within 14 10km squares, and Water Rails were recorded in 29 of those tetrads. Fifty-four tetrads in which they were recorded in one or other of the Kent atlas surveys, including three in which the species was found in both atlases, were not surveyed, and also not covered were some other areas in which there may be suitable habitat. Many of these areas seem unlikely now to hold Water Rails, but more notable were the Fordwich-Westbere area, Leybourne and New Hythe lakes, sections of both Romney/Walland Marshes and the north Kent marshes, and long stretches of the county's major rivers (although in the latter instance, this was often because local observers felt there was not any suitable habitat present).

The extent of coverage, including the number and dates of visits, and also the number of pairs and individual Water Rails recorded, are shown in Table 1. A total of 92 contacts with pairs were made, plus 117 contacts with individual birds. This implies a total of 209 territories, although it should be mentioned that a few of the single birds might have been migrants and the total is thus treated as a maximum for the areas covered. Of the total, 44% were in the Stodmarsh area, 17% at Dungeness and 8% in the eastern Hoo peninsula, these three areas accounting for over two thirds of the county population.



Map 1. Distribution of Water Rails in 2003 and 2005

Discussion

Distribution and Population size

The hypothesis that previous surveys have under-recorded the Kent breeding population has been proven. Even with incomplete coverage, the present survey found 209 territories, contrasted with the previous estimate of 75-100 pairs. It is reasonable to suggest a true county population of 250-300 pairs. This takes into account the areas that were not covered, and also the presence of some birds missed in densely-populated areas: for example, much of the Stodmarsh area was inaccessible and the observer estimated that a minimum of 10 extra pairs were present, and the Fordwich-Westbere area is likely to contain at least 15 pairs.

Despite the increased number of birds found in the present survey, there was a marked decline in the number of tetrads in which they were recorded compared to 1967-73 and 1988-94. In each atlas, they were found in 37 tetrads, but in only 30 tetrads in 2003/05. Of course, the atlas surveys lasted for seven years and it is possible or even likely that some sites will be occupied only occasionally (note that only eight of the tetrads were occupied in both atlases), and that a single year's survey will find fewer occupied tetrads than a series of years. It is also possible that more migrants were included in the atlases than in the present survey. The different methods used make it impossible to be sure whether the range contraction is real or not.

The middle Stour valley, centred on Stodmarsh, has long been known to be the county stronghold for Water Rails and this was confirmed by the present survey: almost half of the county total was found here, and as mentioned earlier, a significant number may have been

missed. More than expected were found in the Dungeness area and in the north Kent marshes. In the former case, this may be because more suitable habitat has developed as the gravel pits have vegetated and matured. However, it is uncertain why an apparent increase has taken place in north Kent; perhaps here more than elsewhere, the presence of many scattered pairs was not appreciated until a systematic survey was attempted.

There are two areas in which lack of records is particularly noteworthy. There were none at all in the Weald, despite some though limited coverage, where there had been scattered records during the atlas surveys. In the Sandwich Bay area, also, none were found; however, here it does appear as though there may have been a genuine decline, as there was only one possible breeding record during 1988-94 whereas they were found in nine tetrads in 1967-73.

Importance of nature reserves

The 2003/05 survey has shown the importance of nature reserves and protected areas, such as the North Kent Marshes Environmentally Sensitive Area (ESA), for the species in Kent. The bulk of birds recorded were noted either at Stodmarsh, within the National Nature Reserve (93 pairs/birds), Dungeness, within an RSPB reserve and also an NNR (36 pairs/birds), or within the North Kent Marshes ESA and its associated reserves (65 pairs/birds). Without accurate previous data, it is hard to say whether there has been any increase or decrease of the populations at these sites.

Effectiveness of the survey methodology

Overall, the methodology was very successful: the tape-call back method is obviously a most effective way of surveying this elusive species, revealing as it did a much larger number of breeding birds present than the previous estimates. Timing of the survey was a little problematical, falling as it did within the migration period; for example, Sandwich Bay Bird Observatory netted a Water Rail in this period. Flexibility and local knowledge to decide the best survey times for a site are probably the key factors to improve this. The method is, however, quite demanding in terms of time, and the failure to achieve complete coverage reflects the difficulty of finding enough surveyors with the time to undertake the survey.

Conclusions and recommendations

The survey was largely a success, revealing a much larger number of breeding birds present in Kent than had been previously recorded. Against this, it is possible that range contraction within the county may have taken place, though this is unproven and coverage was not complete. Future distribution surveys, including the forthcoming national atlas, will help to determine this, and will also identify further areas for coverage in addition to those areas missed during the present survey (see Results). Meanwhile, the results of this survey provide a valuable baseline against which to judge any future population changes in the county.

The survey suggests that nature reserves and other protected areas are very important for Water Rails in Kent, confirming a general trend for many species of fauna and flora. Future wetland habitat creation, combined with the continued sympathetic management of existing

reserves and the maintenance of environmental habitat protection schemes (e.g. SSSIs, Environmental Stewardship), should secure the future of a healthy population of the species within the county.

Acknowledgements

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Reference

Gilbert, G., Gibbons, D.W., and Evans, J. (1998) *Bird Monitoring Methods: a manual of techniques for key UK species*. RSPB, Sandy.

Table 1. Water Rail survey coverage and results

The table also shows the tetrads in which Water Rails were recorded in the two Kent atlas surveys.

10km square	Tetrads 1967-73	Tetrads 1988-94	Tetrads surveyed 2003-05	Site name	Dates 2003 unless stated	Pairs	Singles
TQ55	D						
TQ55	I						
TQ56	G						
TQ56	U						
TQ57	M		M	Dartford Freshmarsh	Apr 13	0	1
TQ57			N	Littlebrook lake	Apr 14	1	0
TQ64			D	Upper Medway Valley	2003	0	0
TQ64			I	Upper Medway Valley	2003	0	0
TQ65		D					
TQ67		B					
TQ67	D						
TQ67		R					
TQ67	S						
TQ67	W	W					
TQ 67			X	Shorne Marshes	Apr 17	0	0
TQ73		N					
TQ74	Z						
TQ75	L						
TQ75	V						
TQ75		X					
TQ76	A	A					
TQ76			F	Burham/Holborough	Apr 17 & May 16 2005	0	1
TQ76			G	Burham/Holborough	Apr 17 & May 16 2005	0	4
TQ76			H	Burham/Holborough	Apr 17 & May 16 2005	0	4
TQ77		B	B	Higham Canal	Apr 6	0	0
TQ77			C	Cliffe Pools	Apr 24 & May 7	1	1
TQ77		I	I	Cliffe Pools	Apr 24 & May 7	0	1
TQ77	P		P	Cliffe Fleet	2003	0	0
TQ77	T	T	T	Northward Hill	Apr 14	2	3
TQ77	U						
TQ77	Y						
TQ77			Z	Northward Hill	Apr 14	0	0
TQ82	Z						
TQ85	G						
TQ86			D	Motney Hill	2003	2	1
TQ86		I					
TQ86			N	Lower Halstow	Apr 5, 21 & 22	0	4
TQ86			U	Barksore Marshes	Apr 8	0	0
TQ86	Z						
TQ87		M					
TQ87		N	N	Stoke Fleet & marshes	Apr 20-21, May 18 & Jun 15	5	7
TQ87			T	Clubbs Pit	Apr 6 & May 5	5	0
TQ87			V	Chetney Marshes	Apr 6 & 22	0	0
TQ87		Y					
TQ94	M						

10km square	Tetrads 1967-73	Tetrads 1988-94	Tetrads surveyed 2003-05	Site name	Dates 2003 unless stated	Pairs	Singles
TQ96	E						
TQ96	H	H					
TQ96			I	Elmley	Apr 12	0	0
TQ96			N	Elmley	Apr 12	5	0
TQ96		S	S	Conyer-Luddenham Gut	May & Jun 05	0	1
TQ96			X	Conyer-Luddenham Gut	May & Jun 05	0	2
TR01			P	Dungeness	Mar 18 & Apr 16	6	12
TR01			T	Dungeness	Mar 18 & Apr 16	1	0
TR01		U	U	Dungeness	Mar 18 & Apr 16	4	9
TR01		Z					
TR02			Q	Dungeness	Mar 18 & Apr 16	1	3
TR03		U					
TR05		I					
TR05	W						
TR05		X					
TR06	A						
TR06	B	B	B	Faversham Creek	Mar 14, Apr 24 & 26	1	2
TR06		C	C	Oare Marshes	Mar 26, Apr 9, 15 & 29	5	1
TR06			E	Capel Fleet	May 11 & 19	0	1
TR06			G	South Swale	Mar 14, Apr 24 & 26	2	4
TR06			I	Swale NNR	2003	3	0
TR06			R	Graveney Marshes	Apr 30	0	3
TR06		S					
TR06			X	Seasalter	2003	2	0
TR13		C					
TR13		G					
TR13		H					
TR13		T					
TR13		X					
TR15		C					
TR16	V	V					
TR16		W					
TR25			J	Seaton Pits	May 10	5	0
TR26	A	A	A	Stodmarsh	Apr & May	9	11
TR26	F	F	F	Stodmarsh	Apr & May	23	23
TR26			G	Stodmarsh	Apr & May	9	18
TR26		J					
TR35		H					
TR35	J						
TR35	L						
TR35			N	Sandwich	2003	0	0
TR35	P						
TR35	R						
TR36	A						
TR36	B						
TR36	F						
TR36	G						
TR36	K						