

Berkshire Breeding Water Rail Survey 2016-18

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(from *The Birds of Berkshire* Annual Report for 2016, published 2019)

Introduction

Water Rails *Rallus aquaticus* are secretive birds, especially in the breeding season and it is thought that the number in breeding in the UK, estimated to be only 1,100 pairs (Musgrove *et al* 2013), may be substantially underestimated. For this reason, the Rare Breeding Birds Panel has recently (2017) asked for evidence of their breeding to be reported to them.

In Berkshire, it is thought that Water Rails have declined substantially in the last two centuries (Standley *et al* 1996), due to lowland drainage schemes and the loss of traditional water meadows and cress beds. Much of these land use changes had occurred by the time of the first Berkshire breeding atlas surveys in 1987-9, which detected a scattering of birds in suitable breeding habitat, mostly along the Kennet valley, though further evidence of breeding was recorded in only three of the 22 occupied tetrads. Twenty years later, atlas surveys in 2008-11 found a similar summer distribution, though breeding was recorded as probable or confirmed in eight of the 20 occupied tetrads (Bucknell *et al* 2013). Using the national estimate of 1,100 territories and the proportion of relative abundance attributable to Berkshire in the atlas surveys (1.1%), a county population of around 12 territories was estimated. However, these surveys were not designed to detect Water Rail and largely relied on birds calling or showing themselves as observers passed.

The UK resident breeding population is augmented in winter by migrants from Europe. In the winter atlas survey carried out in 2007-11, Water Rails were recorded in four times as many Berkshire tetrads (84) as in the breeding season and at almost twice the relative abundance. Return migration begins in late February and is largely complete by the end of March. Egg-laying of UK birds starts in late March and post-breeding dispersal begins in mid-July (BWP). Hence, breeding surveys were conducted from last week of March to the first week of May, with some sites revisited later.

Methodology

The survey method is based on that of Gilbert *et al.* (1998). **Locations:** survey routes or points were selected where, based on a Phase 1 habitat map provided by the Thames Valley Environmental Records Centre or on local knowledge, there was suitable habitat: reed-beds and other marshy areas. **Survey timing:** Surveys were made from the last week of March to the end of April in quiet weather conditions. Surveying started at first light and finished by 2 hours after sunrise. **Equipment:** The playback devices used were Easyacc portable rechargeable speakers with a Water Rail song (Birdguides) audible for at least 50 m. **Method:** When in suitable habitat, the sharming duet was played for 60 seconds; responses were noted and if none, playback was repeated for 60 seconds. This process was repeated every 50 – 100 m. The positions of responders were noted (six figure grid reference) and the type of response: bird sharming in response to playback (R), unprovoked sharming (S), sharming duet (D), other calls (C), sighting (V). Two birds sharming together (duetting) is regarded as a territorial pair and sharming a territorial bird (probable breeder). Water Rails giving other calls (chipping, grunts *etc*) or visual contact only is noted as present in suitable habitat (a possible breeder).

Results and Discussion

The surveys aimed to cover suitable habitat, identified from the TVERC 2007 habitat map (Figure 1a) combined with local knowledge, in the Kennet and Loddon valleys and the Thames between Reading and Streatley plus Englemere Pond. Whilst the TVERC map was a good guide, it identifies only 349 ha of wetland (excluding water) in Berkshire; in addition, there were areas of wet, marshy ground on the floodplains, simply shown as grassland on the TVERC map, that were surveyed. Also, January –

April 2017 had had very low rainfall and some areas identified as marsh on the map were found to be dry. A wet early spring in 2018, which limited surveying in the Pang Valley at Pangbourne, was followed by an unusually dry summer.

Approximately 50% of the habitat identified as marsh or known to be wet meadow along the River Kennet was surveyed; Lambourn, 0%; Pang, 50%; Loddon, c 25%; Blackwater, c 20% (Figure 1). Coverage of potential habitat along the Thames in mid Berkshire was about 30%. A lack of volunteers resulted in poor coverage of east Berkshire, which has an estimated 20% of Berkshire's marsh area: only the Eversley area of the Blackwater and Englemere Pond were surveyed. Overall, it is estimated that about 30% of the potentially suitable habitat in the county was surveyed.

Table 1 summarises the Water Rail records for the 26 areas surveyed in 2016 – 2018. A further five records have been obtained from the Berkshire bird records database. A minimum of 43 birds were recorded at 36 locations, with sharming at 28 of the locations (a "location" being the point at which the bird(s) was recorded). There were no birds detected on ten of the surveys. Most sites were visited only once in the spring survey period. However, breeding was later confirmed at two sites when downy young were seen at Streatley Meadows and downy young of at least two pairs at Fobney Meadows. Data on each of the records are available at <http://berksoc.org.uk/wp-content/uploads/2019/03/Water-Rail-Survey-2016-8.pdf>.

Where they were recorded, the density of Water Rails varied from one responder in several hectares of apparently suitable habitat (eg Linear Park, Calcot) to at least five in two hectares of wet sedges and grasses on the south of a regularly flooded field alongside Rose Kiln Lane in Fobney Meadows.

Berkshire distribution The distribution of Water Rails found in these surveys was similar to that found in Atlas surveys in 2008-11 for the same areas (Table 1, Figure 2), though with birds present in a few more tetrads in the areas covered in the present survey. However, the present survey found only one possible territory in the Kennet valley west of Kintbury, an area recording three occupied tetrads in the 2008-11 atlas and in 1987-9. Recent drainage work on parts of the fisheries and tree planting may have made the habitat to the east of Hungerford less suitable.

Population estimates Methodological differences preclude comparison of abundance estimates, though many more birds were detected in this targeted Water Rail survey (43) than in the Atlas abundance surveys (7). If it is assumed that each location with sharming bird(s) represents a territory and assuming a coverage of 30% of potentially suitable habitat, the county population would be in the order of 90 territories. This figure is considerably higher than the estimate of 12 territories estimated from Atlas surveys in 2008-11.

Habitat In a study of sites in Wales, Water Rails showed a preference for wet reed-beds *Phragmites* but also occupied areas of *Typha* and other marshy land and wet scrub and woodland (Jenkins and Ormerod, 2002). Such habitat is found in Berkshire in over 100 tetrads along the river valleys (Lambourn, Pang, Kennet, Loddon, Blackwater, Thames) and around some gravel pits and other lakes.

Common features of the habitat in which Water Rails were located (Figure 3) were (i) *Phragmites*, sedge or grass cover at least 0.5 m high, (ii) wet, usually with some standing water. Whilst it was a feature of several locations, birds were not found in homogeneous stands of *Typha*. Birds were not located in similar, but dry, vegetation. Locations were all in areas without tree or bush cover, except for two with a sparse willow scrub layer and one in a wet scrub-covered ditch adjacent to a reed-bed. Neither were birds found along river banks or ditches without adjacent open wet areas. The open areas in which the birds were located were almost all (32/36) of greater than 1 hectare.

Seasonal variation Lower Basildon, Fobney and Coley Meadows were surveyed in both 2016 and 2017. Coley Meadows, which held several Water Rails in 2016, were much dryer in 2017 and no birds were found. The flooded field alongside Rose Kiln Lane in Fobney Meadows was wetter in 2017

and more birds were recorded (>5) than in 2016 (1). Although present in the wet spring of 2018, the flooded meadow dried out in June and no birds were detected in early July. However, at least one bird was present in a wet Phragmites bed on the nearby Fobney Island on July 3rd (Figure 4). Given the interannual variation in spring water levels on the floodplains, Water Rails breeding sites are likely to change from year to year, as suggested by these observations.

Conclusions

Water Rail were found in the breeding season on 16 of the 26 areas surveyed because they were thought to have suitable habitat. Casual records from a further five sites are included in this report. A minimum of 43 Water Rails were found at 36 locations. Extrapolation of these results to the whole of Berkshire, based on potentially suitable habitat would suggest a county population in the order of 90 territories, many times earlier estimates.

The distribution of Water Rails found in this survey was similar to that found in the atlases based on surveys in 1987-9 and 2008-11, the marshy areas of the Kennet floodplain holding the majority of birds.

Open marshy areas with standing water, with either Phragmites reed-beds or tall (0.5-1m) sedge/grass cover were the preferred habitats. Such habitat can be ephemeral: depending particularly on rainfall and grazing, so the position of territories may move from year to year. There is some evidence that habitat continues to be lost due to drainage and to scrub growth. Although wetland nature reserves have been created as gravel workings close, most wetland areas have quickly become wooded and little open marshy habitat has been formed.

References

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Acknowledgements

This survey has been done by a dedicated team of surveyors who got up early to walk the marshes:

Neil Bucknell, Jane Campbell, Fraser Cottingham, Phil Dunk, Chris Foster, Roger Frankum, Robert Godden, Ellie Green, Adrian Hickman, Adrian Lawson, Alan Lindsay, Bob Lyle, Ken Moore, Roger Murfitt, Lauren Richards, Renton Righelato, Lesley Staves, Des Sussex, John Swallow, Andy Tomczynski, Bill Warracker.

Table 1 Summary of Water Rail survey records 2016 - 18

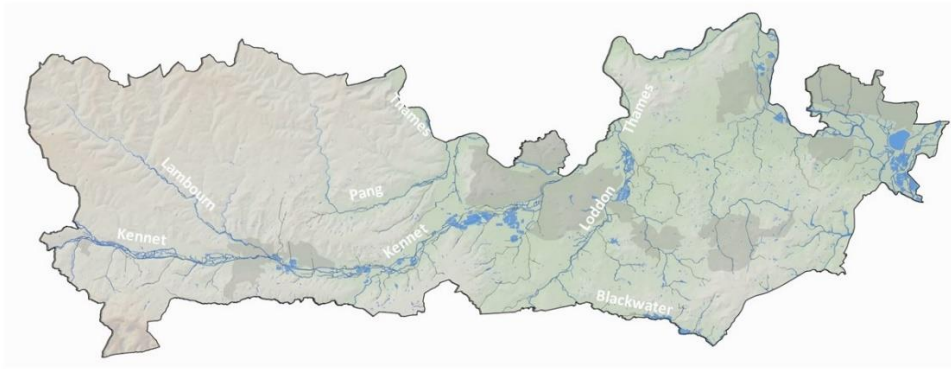
Survey area	2016 ³	2017 ³	2018 ³	Survey path tetrad(s)	Atlas 2008-11 ²
Kennet, Freeman's Marsh				SU36J	Po
K&A Canal, Hungerford – Kintbury				SU36T, U, P	Co, Pr, Po
Kennet Avington – Barton Court				SU36T	
Kennet, Kintbury		R, D (4)		SU36Y	-
Kennet, Halfway		C, V, R (3)		SU46D	Po
Kennet, Marsh Benham				SU46I	-
Kennet, Marsh Benham-Newbury				SU46N	-
Kennet, Speen		S, D		SU46T	-
Kennet, Thatcham Marsh		R, D (3)		SU46Y, 56D	Co, Co
Kennet, Woolhampton GPs		S (1)		SU56T	Co
Padworth Lane GP, Aldermarston Wharf				SU66D	-
Kennet, Linear Park, Calcot		R (1)		SU67K, Q	-, Po
Kennet, Coley Meadows	V, R, D (4)			SU67V	Po
Kennet, Fobney Island - Burghfield				SU67V	-
Loddon, Swallowfield - Arborfield	R (1)			SU76N	-
Kennet, Fobney Meadows	R (2)	R, D, Y (5)		SU77A	-
Thames, Kings Meadow, Reading				SU77C	-
Thames, St Patrick's Stream, Charvil				SU77T	-
Thames, Lower Basildon				SU67E,I	-
Thames, Streatley Meadow	Y(2)			SU58V	-
Pang, Bradfield			R (2)	SU57W	-
Pang, Pangbourne				SU67H	-
Blackwater, Eversley GPs			V	SU86B	-
Loddon, Dinton-Lea Farm	S (1)	R (2)		SU77W	-
Loddon, Whistley Green				SU77X	-
Englemere Pond		R (2)		SU96E	-

1. Grey background indicates survey carried out in year
2. BTO breeding status recorded in Atlas for the tetrad(s) listed: = none; Po Possible; Pr Probable; Co Confirmed
3. Water Rail survey observation code (with suggested equivalent BTO breeding status in parentheses): C – call heard (Po); V – bird seen (Po); S – sharming bird (Pr); SR – sharming in response to playback (Pr); D – duetting (Pr); Y – downy young seen (Co). Minimum number of birds (n).

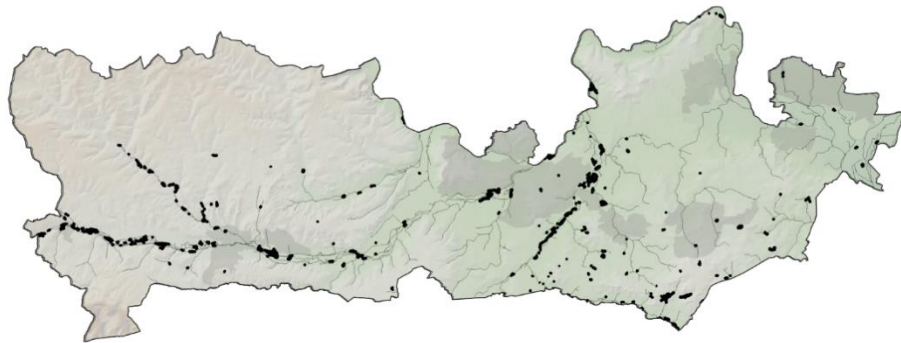
Table 2 Areas surveyed with no Water Rail detected

Survey Area	Habitat notes
Kennet, Freeman's Marsh	PGT, rough meadow with ditches and some scrub, some wet areas
Kennet, Avington - Barton Court	PGT mostly well-drained
Kennet & Avon Canal, Marsh Benham - Newbury	
Kennet & Avon Canal, Fobney - Burghfield	Mostly Willow carr, G, T, some wet areas
Kennet, Padworth Lane - Aldermarston Lock	Mostly Willow carr and river bank with trees
Thames, St Patrick's Stream, Borough Marsh	Mostly meadow with ditches. GTP. Ground cover mostly < 0.3m
Pang, Pangbourne (south)	Meadow and river bank with trees. GT. High water level in survey year (2018).
Blackwater, Grove and Colebrook Lakes, New Workings, Fleethill Farm	PGT, lake fringes with <i>Phragmites</i> and open areas with rushes and grasses with little standing water.
Thames, King's Meadow	River bank and short grass meadows with tree-lined ditches. Some fringing <i>Phragmites</i> along river bank.
Thames, Lower Basildon	River bank with short grass meadows with some <i>Typha</i> and wooded areas. Steep-sided ditches from drainage works over 20 years ago.

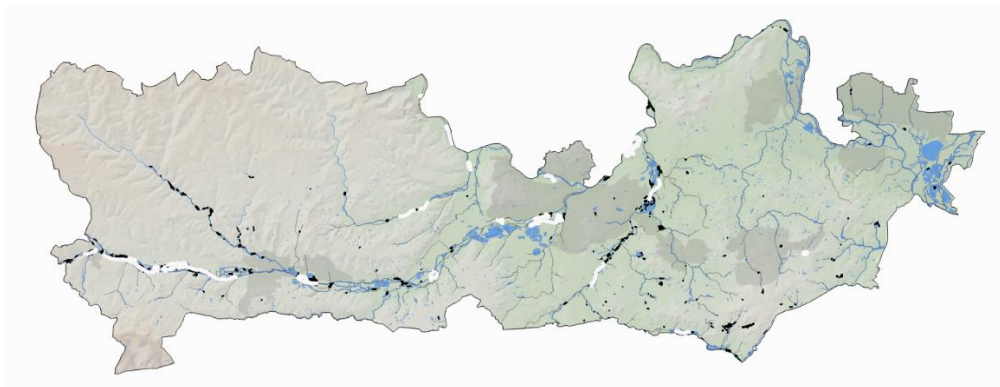
P – *Phragmites*; G – Grasses, rushes and sedges; T - *Typha*



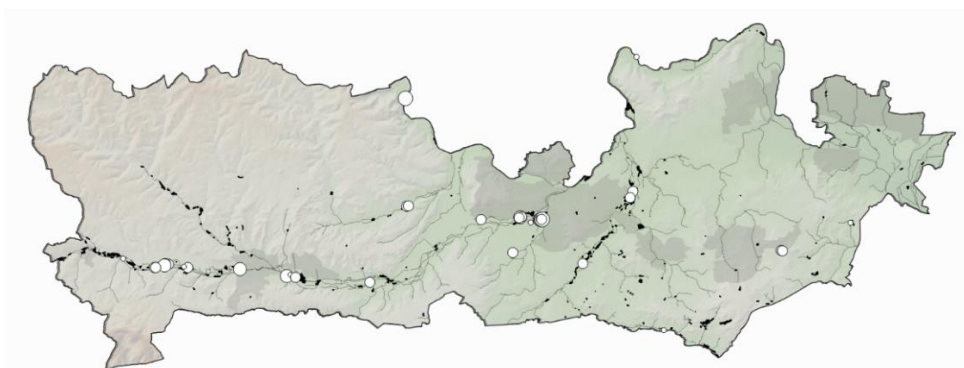
(a)



(b)



(c)



(d)

Figure 1 (a) Berkshire river valleys; (b) marsh shown in black: total area 349 ha, west Berkshire 47%; mid 33%; east 20% (source TVERC); (c) survey paths overlaid in white; (d) distribution of Water Rail records white dots.

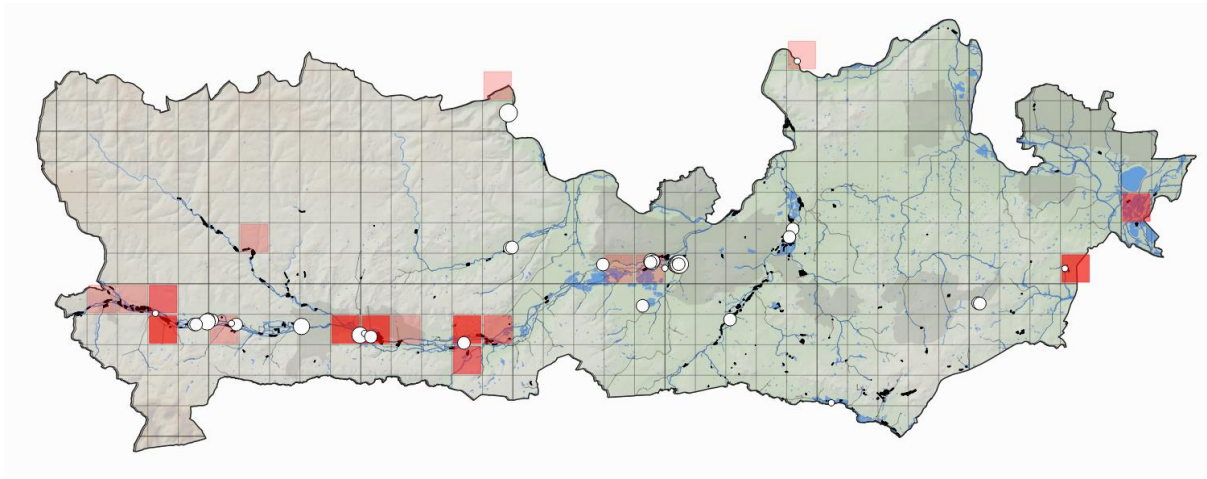


Figure 2 Comparison of Water Rail breeding season distribution in 2016 – 18 surveys (white dots) with the Berkshire Atlas 2008 – 11 distribution (red squares).

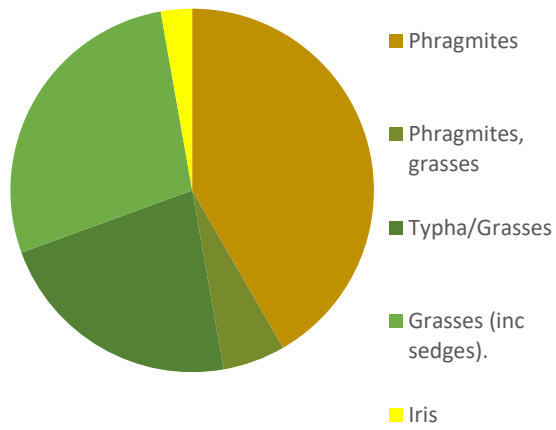


Figure 3: Main ground cover of locations with Water Rails



2016
 Fobney Meadow low water level
 Coley Meadows with standing water.

2017
 Fobney Meadow flooded
 Coley Meadows dry.

2018
 Fobney Meadow wet in April but dry by mid-June. In a survey on 3 July no responses but at least one bird on Fobney Island (red dot) in wet reed-bed.
 Coley Meadows not surveyed.

Figure 4: Seasonal variation in occupancy of Coley and Fobney Meadows

Grid reference	Survey area	Date	Evidence	Minimum count	Ground cover	Nearest trees m	Open area	Notes
SU3905,6733	Marsh Benham-Kintbury	09/04/2017	R	1	P	60	>10	Wet Phragmites reed bed
SU3917,6733	Marsh Benham-Kintbury	09/04/2017	R	1	P	20	>10	Wet Phragmites reed bed
SU3990,6750	Marsh Benham-Kintbury	05/04/2017	D	2	I	250 ¹	>10	Wet "iris bed" below willow cover, near wet phragmites reed bed
SU3997,6767	Marsh Benham-Kintbury	05/04/2017	R	1	P	200	>10	Wet Phragmites reed bed
SU4023,6760	Marsh Benham-Kintbury	05/04/2017	R	1	P	100	>10	Wet Phragmites reed bed
SU4149,6739	Marsh Benham-Kintbury	27/03/2017	C, V	1	P	120	>10	Wet. Phragmites reed fringe by channel
SU4181,6733	Marsh Benham-Kintbury	27/03/2017	R	1	P	10	>10	Wet Phragmites reed bed
SU461,672	Speen	20/05/2017	S,C	2	G	150 ¹	>10	Wet. Sedge with stream, some willow carr
SU4995,6663	Thatcham Marsh	31/03/2017	D	2	P	70	>10	Damp. Phragmites fringed with willow and alder. No standing water
SU5025,6674	Thatcham Marsh	31/03/2017	C	1	P	50	>10	Damp. Phragmites fringed with willow and alder. No standing water
SU5067,6652	Thatcham Marsh	31/03/2017	R	1	P	50	>10	Damp. Phragmites fringed with willow and alder. No standing water
SU5970,8120	Streatley Meadows ⁵	01/04/2016	R	1	T,G	80	1 to 10	Wet. Typha and sedges
SU5980,7235	Pang valley	04/04/2018	R	1	T,G	100	1 to 10	Wet Typha and grasses
SU5995,7238	Pang valley	04/04/2018	R	1	T,G	120	1 to 10	Wet Typha and grasses
SU6592,7126	Calcot, Linear Park	01/04/2017	R, V	1	T,G	50	1 to 10	Damp. Sedge, no phragmites. West end of settling pools.
SU6905,7140	Coley Meadows	12/04/2016	R	1	T,G	110	1 to 10	Damp but little or no standing water
SU6913,7145	Coley Meadows	12/04/2016	DR	2	T,G	90	1 to 10	Damp but little or no standing water
SU6917,7149	Coley Meadows	12/04/2016	V,R	2	T,G	50	1 to 10	Damp but little or no standing water
SU6925,7148	Coley Meadows	12/04/2016	R	1	T,G	70	1 to 10	Damp but little or no standing water
SU7067,7141	Fobney Meadows	10/03/2016	C	1	G	200	>10	Wet. Sedges and grasses near wet ditch
SU7074,7126	Fobney Meadows ^{4,5}	02/04/2017	D, S,C	2	G	200	>10	Wet. Sedges and grasses with standing water.
SU7087,7127	Fobney Meadows ⁴	02/04/2017	S D	2	G	200	>10	Wet. Sedges and grasses with standing water.
SU7078,7127	Fobney Meadows ⁴	08/05/2018	R	1	G	200	>10	Wet. Sedges and grasses with standing water.
SU7090,7128	Fobney Meadows ⁴	23/04/2016	R	1	G	200	>10	Wet. Sedges and grasses with standing water.
SU7095,7128	Fobney Meadows ^{4,5}	02/04/2017	S,C	1	G	200	>10	Wet. Sedges and grasses with standing water.
SU7102,7129	Fobney Meadows ⁴	08/05/2018	R	1	G	200	>10	Wet. Sedges and grasses with standing water.
SU7103,7130	Fobney Meadows ⁴	02/04/2017	S,C	1	G	200	>10	Wet. Sedges and grasses with standing water.
SU7428,6765	Loddon, Arborfield	08/05/2016	SR	1	P,G	20	<1	Wet. River bank with some Phragmites
SU7818,7306	Teal Hide, Dinton	01/04/2016 ³	S	1	P	30	<1	Wet Phragmites
SU7840,7358	Lea Farm Lake	22/04/2017	S	1	P	30 ¹	<1	Wet ditch with scrub cover adjacent phragmites
SU9059,6873	Englemere Pond	25/03/2017	S	1	P	30	1 to 10	Wet phragmites reedbed and swamp with some Willow scrub
SU9070,6870	Englemere Pond	25/03/2017	S	1	P	100	1 to 10	Wet phragmites reedbed and swamp with some Willow scrub

Casual records	Site name	Date	Evidence	Minimum count	Ground cover	Nearest trees m	Open area	Notes
SU3676,6800	Avington Estate	21/03/2018	R	1	P, G	100	>10	Wet pond edge with phragmites (no response in survey 25/04/2018)
SU5678,6612	Woolhampton GPs	Apr-17	S	1	P	300	<1	Wet. Phragmites reed bed on lake edge
SU6853,6855	Burnthouse Lane GPs	2016 - 2018	C	1	G	30 ¹	>10	Damp. Heard calling in sparse willow scrub several springs.
SU787,846	Aston	03/04/2017		1				No habitat information. Reported from 18/3 to 3/4.
SU7008,7113	Fobney Island ²	03/07/2018	R	1	P	100	1 to 10	Wet Phragmites. (no response in surveys April 2017 and May 2018)
SU809,622	Manor Lake	02/04/2018	V	1	P	30	>10	Wet Phragmites reed-bed (no response in survey 13/04/2017)
SU934,793	Dorney Wetlands	07/04/2017	V	1				No habitat information
SU963,710	Great Meadow Pond	02/04/2016	C	1	P		1 to 10	Wet. Phragmites