Chippenham Fen NNR

Reserve Report

April 2019 - March 2020

Michael Taylor
Reserve Manager

Reserve Management

Staff

Management work was carried out by Reserve Manager Mike Taylor, Senior Reserve Manager Chris Hainsworth, NNR Apprentice Tom Booth, Emma Quick of Natural England, and Joanne Feltrup the newly appointed reserve manager for Dersingham NNR who worked for several days at Chippenham. NNR staff were greatly assisted in management and survey work by NNR volunteers.

Covid – 19

A global pandemic of a new corona virus called Covid19 reached the UK in late February/early March and by 24 March the country was in fairly strict lock-down with businesses closed and people advised to stay at home. Natural England offices were closed and staff , including NNR staff, worked from home. All planned public events and volunteering was cancelled, and NNR staff were only able to visit reserves for essential H&S and animal welfare tasks. This remains the situation at time of writing (27 April) and it is unclear whether any management work, other than caring for livestock, will be possible at all this year. All survey work, including butterfly transects and breeding birds surveys, has been abandoned for the year.

Grazing

Buffalo

The six water buffalo grazed parts of the reserve as follows (grazing units named as on Map 2 Grazing areas) :

Pigeon	5 April – 8 April; 10 May – 15 May; 4 July – 15 August (50 days)
Baxter west	1 April – 5 April; 15 - 25 August (c9 and part c10 only); 25 August - 20 September; 24 October - 31 March (199 days).
East meadows	15 May – 4 July; 20 September – 24 October; (84 days).
North meadows east	8 April – 10 May (32 days)
North meadows west	Not grazed by buffalo this year

The table below compares buffalo grazing duration in days for each unit since 2009/10:

	Grazing Unit Name (Compartment Number)				
	Pigeon (c 7,8 and11)	Baxter west (c9/10)	East Meadow (c13)	North meadow east (c1)	North meadow west (c2)
2009/10	55	182	110	18	
2010/11	75	165	81	44	
2011/12	78	199	70	18	
2012/13	51	215	58	41	
2013/14	48	199	78	40	
2014/15	38	159	119	32	17
2015/16	67	163	92	44	
2016/17	85	154	83	43	
2017/18	59	174	132		
2018/19	85	174	83	21	
2019/20	50	199	84	32	

After two very dry summers and a dry, mild intervening winter in 2018/19, things changed in October, which was an exceptionally wet month. Winter 2019/20 continued rather wet but very mild, with few sharp frosts and only the occasional sprinkling of snow. The wet conditions meant that the feeding area at Bullock Hill became a quagmire and getting the tractor in to deliver large hay bales was a challenge at times.

Despite this one or two of the buffalo showed signs of losing condition around Christmas so we began feeding on 10 January, giving 2 bales of barley straw and a bag of carrots each day, supplemented by the occasional large round hay bale which Will Taylor had made on the buffer land outside the Fen. In all we used 17 large bales this year. With the Covid19 lock-down we decided to keep feeding the buffalo until we had used up all our straw and large hay bales – by this time vegetation growth in the compartment was just about sufficient to keep them going until we were able to move them to the north meadows.

The table below summarises the quantities of feed (straw and carrots, and this year large round hay bales from edge of fen) that we have given the animals since we began supplementary feeding in 2009-10:

	Number of days fed	**Barley straw (small bales)**	**Carrots (15-20 kg bags)**	**Large round hay bales**
2009/10	105	212		
2010/11	93	136		
2011/12	91	206		

2012/13	92	274	60	
2013/14	89	150	65	
2014/15	84	180	65	
2015/16	50	100	47	
2016/17	94	194	86	
2017/18	108	254	103	4
2018/19	109	168	91	10
2019/20	96	168	70	17

We received notification in September that the buffalo were due for a TB test, and that this should be carried out by 13 January. Getting the animals in the pen for testing is never straightforward and so we were apprehensive at the prospect. Fortunately, after enquiries to local vets and APHA, it transpired that as our buffalo are resident on site and are not a breeding herd they did actually not require a test on this occasion.

Lice infestation was as usual evident during the winter but the animals were not treated with Trodax this year.

No dung samples were taken this year.

The electric fence around the Baxter west grazing compartment was strimmed once during July and August; the fence around Pigeon grazing compartment was strimmed once, in late June/early July. Fences were checked several times per week when buffalo were grazing, and any repairs made as necessary. Several fallen or dangerous leaning trees were removed along the fence-lines during the year.
The worst buffalo-poached areas in Baxter west, notably the feeding area at Bullock Hill, were rotovated in April, when the feeding area was also tidied up. Extensive repairs were made to the Baxter West, Pigeon, East meadow, west end of compartment 2 and Compartment 1 fences through the year, with about 100 rotted fence posts being replaced and a gate in compartment 2 being re-hung.

In order that the buffalo could graze compartment 9 and part of compartment 10 in July without harming the Cambridge Milk parsley a temporary electric fence was erected to exclude the buffalo from the main milk parsley area in compartment 10.

Trading Standards made a routine check on the buffalo on 17 May.

The weekend buffalo checking rota, involving NE staff and volunteers, continued throughout the year. For most of the year checking was done only once per weekend, but each day between 10 January-March when we were feeding the

animals. The Covid19 lock-down ended all volunteering on NNRs, so from 24 March all feeding was carried out by NNR staff only.

Cattle

Grazier Will Taylor moved 27 cattle (13 cows, 13 calves and a bull) from the buffer land outside the fen up the footpath into compartment 1 on 23 July. Until 5 September they were excluded from the Cambridge Milk Parsley area in the west of the compartment.
On 25 September the cattle were moved across the footpath from compartment 1 to compartment 2, where they stayed until 15 October when they were moved back into compartment 1. On 28 October they were moved out of compartment 1 and taken off the reserve via the top footpath. To tempt the cattle out of the compartment the grazier had provisioned hay in a couple of places and a fair amount of clearing up was necessary.
Ragwort was fairly abundant in compartment 1 again this year, but no control measures were carried out.

Rides/ Ride-Cutting

All main rides were cut several times between May and September, using a combination of Gator and flail mower and BCS. Mechanical problems with the Wessex meant that it was out of action for some periods.
Any windblown trees/branches were promptly cleared from rides and footpath. There were several storms during the winter, notably storm Ciara, bringing down a number of large trees which were subsequently cleared if necessary.
A short stretch of 40 acre ride side was coppiced by staff/volunteers in January, but wet and stormy conditions meant that the task was not completed subsequently. The river culvert on the main footpath was cleared on 17 July, and post and rail barriers erected for safety reasons.
The top footpath (west side) was cut by Tom Booth using the Robomower on 2 July – this proved a very slow process and it was agreed that strimming would probably be quicker.
Several holes/wet spots in rides, particularly Pigeon Ride, were filled with tractor buckets of spoil from near the main gate. A wet stretch of the ride leading to East meadow was built up with chalky spoil from the bank around the East meadow pond on 29 August.

Topping/Cut and gather

Reed in the ditch bank between the shed and Baxter West and in the wetter parts of Ian McLeans plot was topped with strimmers in May and June.

An area of rush in compt 11 (glade near work-base)was cut with BCS on15 April.

Some areas of rush in compts 1 and 2 were topped with the Wessex mower on 9 May.

Several days were spent cutting selected areas in compartments 1, 2, and 13 using the tractor and Ryetec cut and collect machine between 10 October and 1 November.
The traditional areas, like Ian McLeans plot and the Bogbean were cut by BCS and brushcutter over 4 man-days in September. These were raked off during two Cambridge Conservation Volunteer tasks, on 15 and 22 September.
Two areas in compartments 8 were cut with the BCS in late summer/autumn – these were raked and piled by staff and volunteers. An area of rush/Phalaris in the grazed part of compartment 11 was cut with BCS on 10 January, and raked and piled by weekend NNR volunteers on 12 January.
The ditch side between the shed and Baxter ride was cut in October, and raked and piled by NE Breckland Team during a team meeting. Part of the ditch side at the north end of Pigeon Ride was cut by brushcutter on 4 October, and the cut material raked and piled.
In all 2.6ha were cut with the Ryetec and 0.6ha cut and gathered by hand.

The Ryetec was again loaned to Woodwalton/ Collyweston NNRs from 9 August to 24 September, and to Suffolk Coast NNRs between 31 January and 3 March . Jim Rileys shooting area adjacent to the reserve was topped twice, in May and June.

Sedge Cutting

Marcus Setchell carried out the sedge cutting this year in compartment 4 starting on 29 August. In all about 1500 bundles were cut and carted off , and most of the waste material tidied up by 17 October. An area of 0.3ha of sedge bed was cut.

Water

The exceptionally dry conditions of 2018 and early 2019 led to water levels in ditches being very low – some manipulation of collar dams was carried out in May to try and raise levels. 2019 summer continued to be very dry, and some ditches almost dried up completely, not seen in at least 20 years. As a result, for only the second time in the last 20 years, we asked EA to turn on the Lodes Granta scheme on 29 August. Only the inflow at the main spring seemed to be working significantly, but this together with raising collars began to raise water levels in the ditches.

Tracks to our dipwells, and the EA dipwells on the north meadows and in compartment 8 were periodically strimmed/mown for ease of access.

Access

Numerous fallen trees were cleared from rides around the reserve during the year.
The gatepost at the east end of the top footpath was replaced on 6 November and the kissing gate and field gates re-hung.
The new culvert near the main spring (tractor/gator access from field to feeding area) was built up further with the remainder of stone and sand left over from last years bridge construction works.

Bridge/Culvert Project

Work continued on the two new bridges in East Meadow and Compartment 1. Staff and volunteers erected gates and railed both bridges.
On 25 October a corridor was cleared through the woodland between the bridges and the intention is to erect fencing along this corridor to allow livestock to move between compartment 1 and East Meadow.

Ragwort Control

The higher, drier parts of compartment 1 had a reasonable amount of ragwort again this year, but considerably less than in 2018. No pulling or cutting was carried out this year.

Deer/Pest control

Jim Riley carried out stalking activities on the fen as usual. On 108 visits, 18 muntjac bucks, 12 muntjac does, 6 roe bucks and 7 roe does were shot, plus 5 dog foxes and 4 vixens.

NNR Workbase

The office, lobby and w.c/shower were cleaned every two weeks by Mark Day on contract. The workshop and tractor area were swept/tidied by NE staff when time allowed.
The fire alarm system was serviced by M-Fire on 20 August and 26 February .
NE staff tested the fire alarms on a monthly basis.
John White (NE) assisted by a Woodbastwick volunteer carried out PA testing of some equipment on 17 October.

Gutters front and rear were cleared out on 30 September.
Allianz carried out our LOLER testing on 1 July and a compressor service on 21 January. The truck winch failed the LOLER test as it did not work at all – After Care, through BT Fleet, fitted a completely new winch on 23 July.
The septic tank was emptied by Extraction Services on 7 January, with 5000 gallons of cess being removed.
The two tractors, Gator, Wessex flail mower, Votex flail, rotovator, Ryetec and BCS were serviced by Stephen Eyles on 27 February and 17 March. New blades were purchased for the Ryetec and rotovator, but not fitted yet. A completely new engine was fitted to the Wessex flail mower.
The bird feeder in front of the workbase, and the feeder near the buffalo pen, were kept filled throughout the year, only sunflower hearts being used.

Browns of Burwell delivered 800 litres of diesel to our tank 19 February.

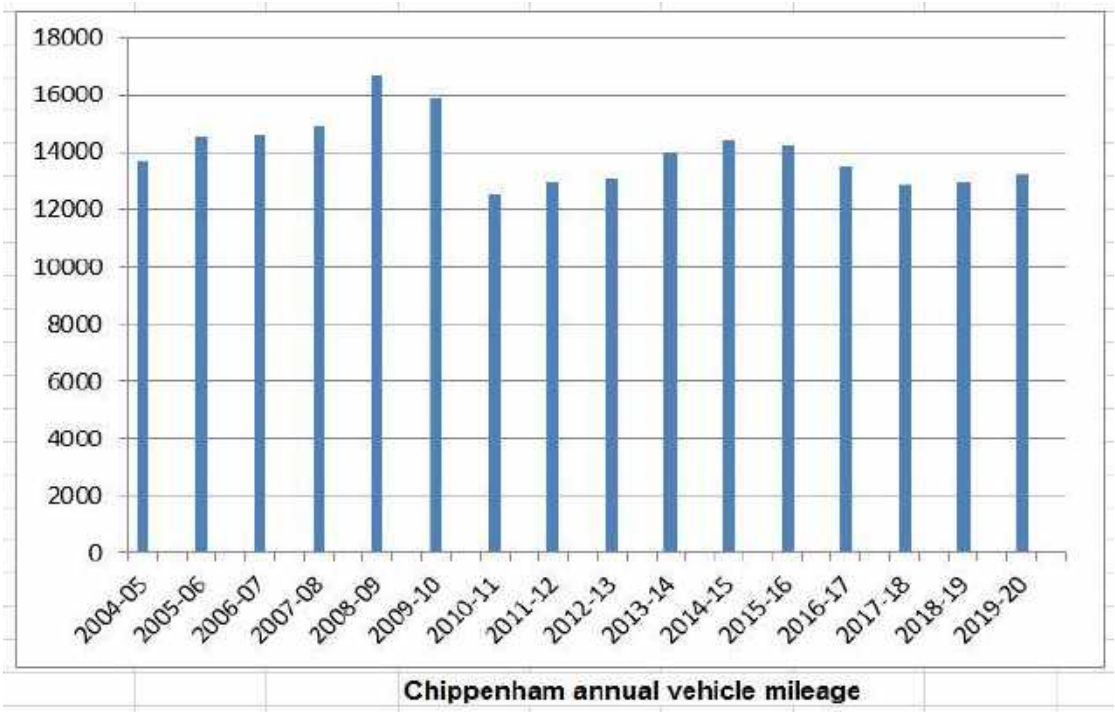
A new printer was delivered and set up on 17 April. As part of a DEFRA connectivity project a second phone line was installed by BT on 31 July. Also as part of this project Vodaphone installed two new routers on 16 September – unfortunately they didn't work and are still not working at the time of writing.

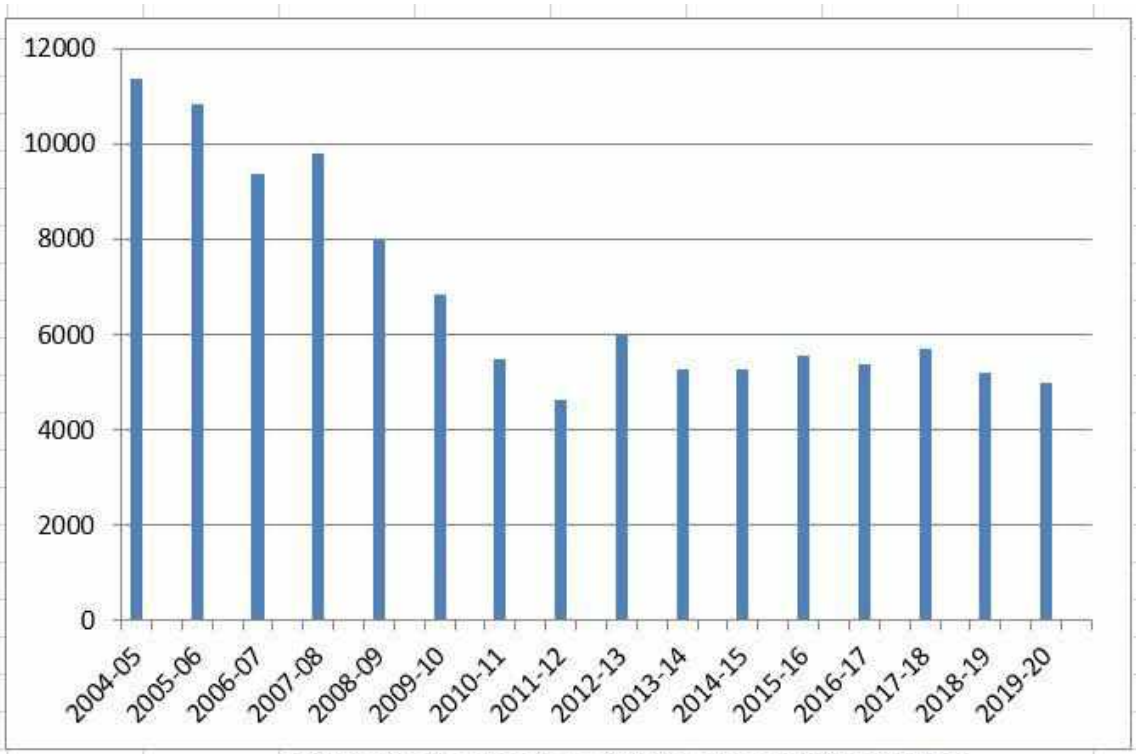
After struggling to find a reliable plumber to carry out remedial works identified in the work base Legionella risk assessment, we eventually engaged Dorans Plumbing to carry out the work in late October and it was successfully completed. The plumber also fixed the faulty water heater in the kitchen, which had not worked for some months.

At the end of May a potential H&S issue with roller doors came to light – we reviewed risk assessment and permanently marked danger areas under each door. On 14 August Downham Doors came to service our roller doors – they stated that the doors were potentially dangerous, and quoted several thousand pounds to rectify. This seemed excessive, so we sought a second opinion from the manufacturer, Syston Doors. An inspection was carried out on 21 August and the engineer passed the doors as completely safe.

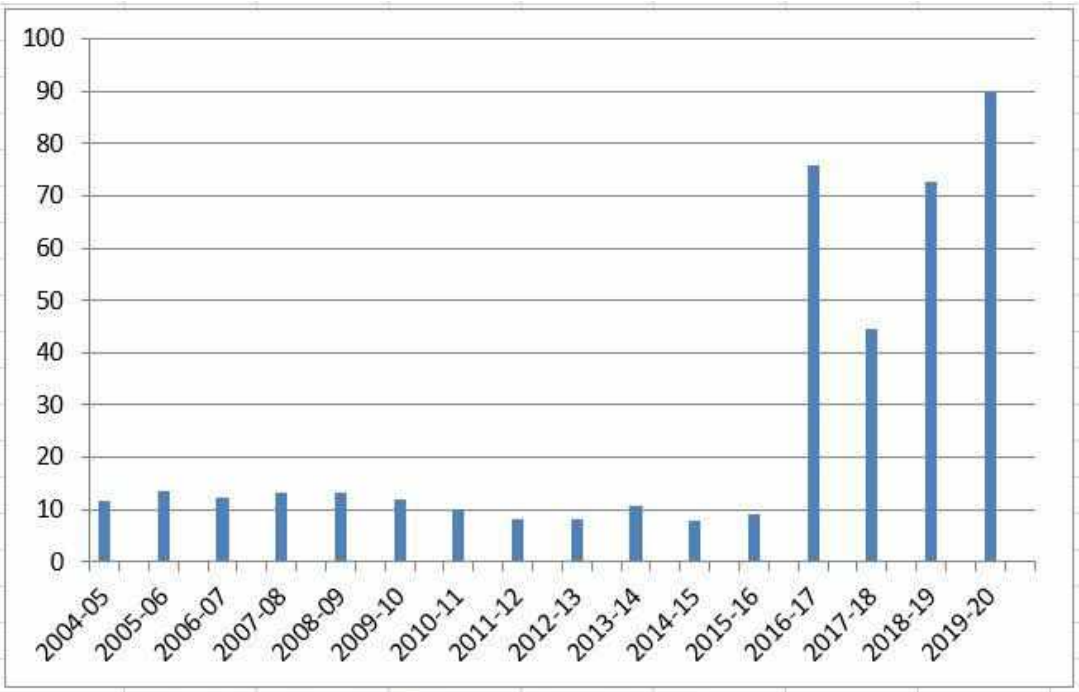
On 27 March, a few days after Covid lock-down, the work base alarm went off in early evening. Chris attended and luckily there was no sign of the intruders – one of the roller doors had been significantly damaged however, making the building un-secure. It appears that the intruder may have tried to ram the door with a vehicle, and tried to lever the door from the base – as a result the door was broken away from its side mountings, allowing the intruder to squeeze through into the tractor storage area, setting the alarm off. Nothing was actually stolen and it seems that the intruder(s) beat a hasty retreat through the rear fire door. Repair of the door is not possible during the current pandemic, so we have made the building as secure as possible by parking tractor and gator against the roller doors and piling heavy items against the rear fire doors.

For a number of years we have recorded environmental data for the work base each month, together with vehicle mileage data. Charts showing the annual totals of mileage, electricity consumption, water consumption, cess, rubbish and recycling produced are below:

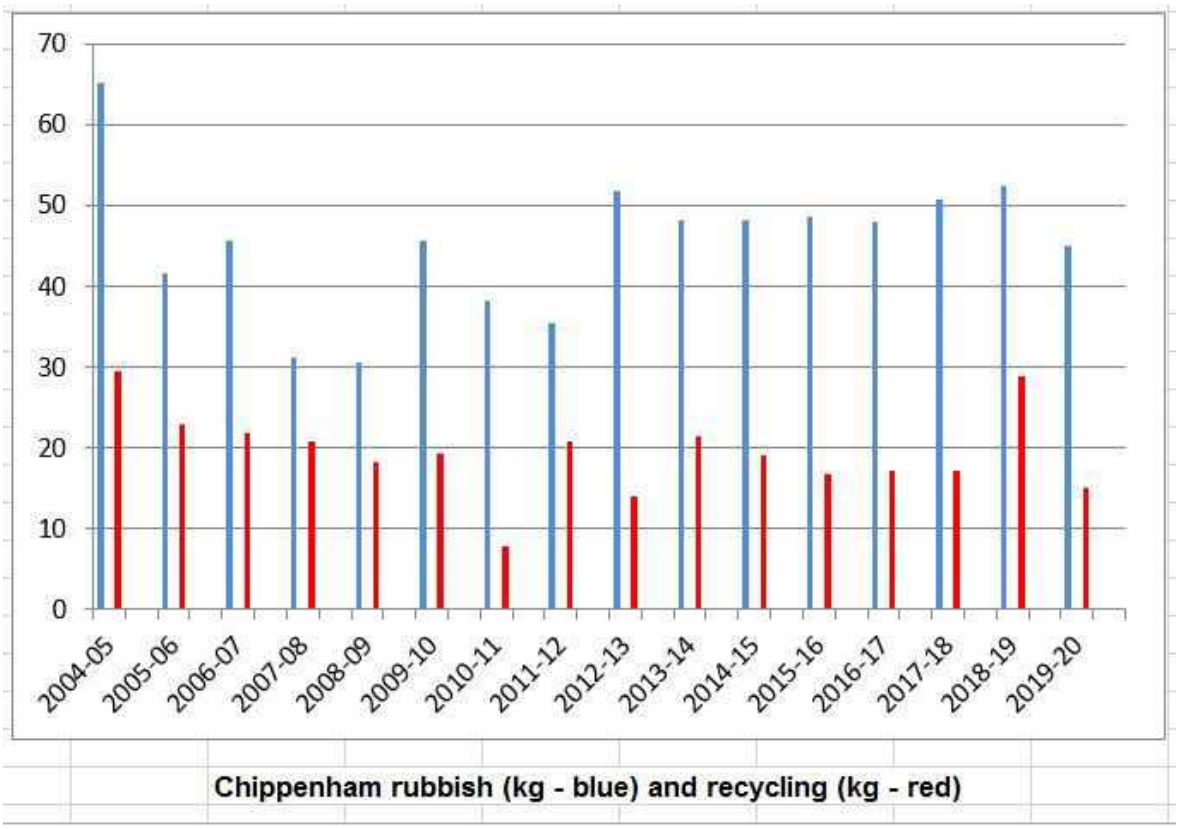




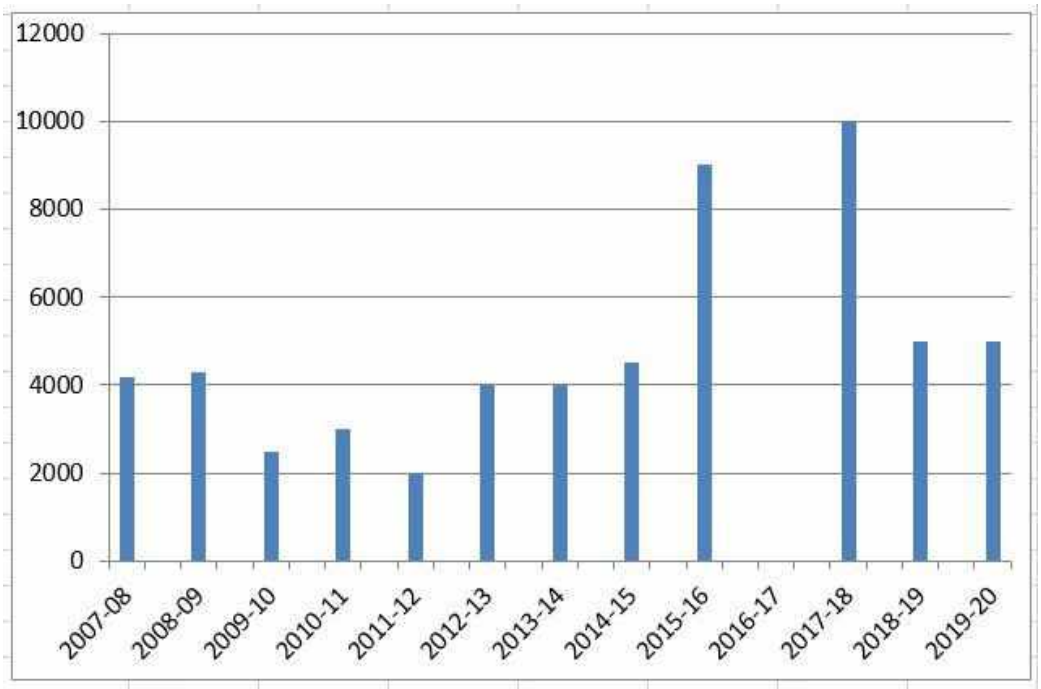
Chippenham annual electricity consumption (kWhr)



Chippenham annual water consumption (m3)



Chippenham rubbish (kg - blue) and recycling (kg - red)



Chippenham annual amounts of cess removed (galls)

Most of the charts are self- explanatory and are reasonably comparable from year to year, apart from high water consumption in the last few years due to supplying

water to the graziers cattle when they were on the buffer land outside the fen and possibly an indication that the septic tank requires emptying more regularly in the last few years – the reason for this is not known, but we have speculated that water may be seeping into the tank through a crack in the wall.

Health and Safety

Access structures and tree safety checks were put onto a new NNR app for tablets and iphones during July. This will make carrying out checks easier in the future, as well as being accessible to senior management.
There was an Area 9 H&S workshop for NNR staff held on 1 October.
Every few years we like to get a professional opinion on tree safety in our zone 1 and 2 areas on the footpath and around the workbase. After getting two quite differing quotes we asked Jim Allitt (ex-NE) of Norfolk Wildlife Services to carry out the tree safety check, which was completed in mid-December. Relatively few trees were identified as dangerous, perhaps validating our previous in-house assessments. We received a reasonable quote for the remedial work from Treecreeper Tree Services, and the work, involving climbing and the use of a mobile elevated platform, was carried out on 25 February. One of the identified trees, a dead ash near Ash Ride, was felled by NNR staff on 6 February.
Two potentially dangerous alder(roots had been undermined) and one ash near the main gate were felled and cleared by NNR staff and volunteers on 3 and 4 September
NNR risk assessments and COSHH assessments were reviewed/put into updated format during the year.
Legionella temperature testing in the workbase was carried out on a monthly basis.

Volunteers

We are extremely grateful to a number of volunteers who contributed greatly to the management and surveying of the reserve this year. In all, a total of 79.5 person-days were worked by volunteers, and this can be broken down into 45 days of practical management , 22 days of livestock checking and 14 days of survey work.

With thanks to:

Bruce Martin, Phil Brown, Owen and Monica Marks	Dusk survey (4 days)

Terry and Glen Riley, Nick Sibbett, Ruth Angrave, Christoph Zockler, Sam Mortlock Emma Quick, Caroline Cavill	
Cambridge Conservation Volunteers	Spent two days assisting with practical management works (14 days)
Terry and Helen Moore	Amphibian and orchid surveys (1+ Days)
Phil Brown, Dale Hing, Pamela Abbott, Phil Vigrass, Monica O'Donnell Alex Nichols, Bill Mansfield, James Hurst, Joanne Feltrup and Dan	Weekend buffalo checks (22)
Bill Mansfield	Moth recording
Phil Brown, Phil Vigrass, Colin Bailey, James Hurst, Sam Mortlock and the Weekend volunteers	Practical management
Alan Leslie	Plant recording
Mike Holdsworth, Peter Bircham Carole Bernard	Bird ringing (9 days)

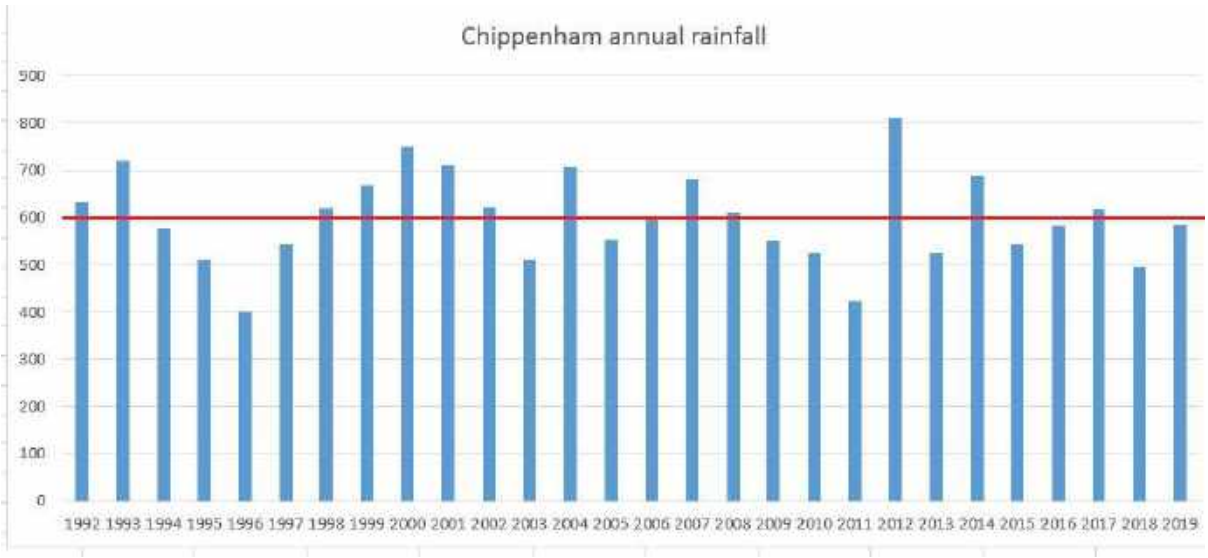
Survey and Monitoring

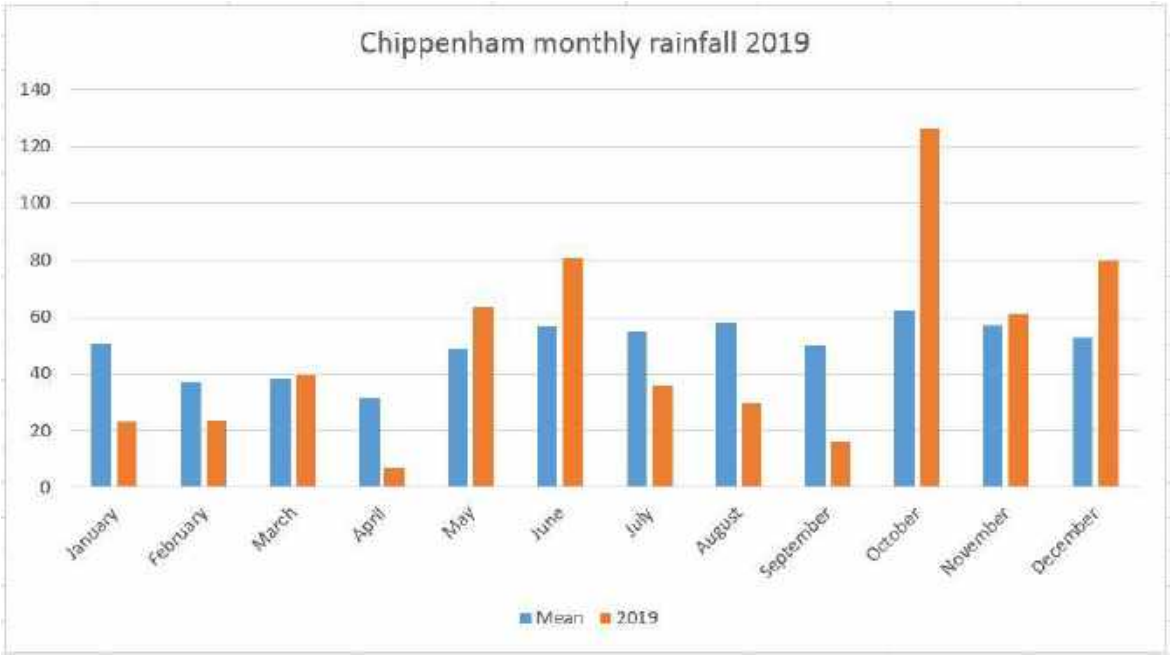
Water levels/Rainfall

Dipwell readings were taken every two weeks, and rainfall readings weekly. All data were entered onto the dipwell spreadsheet.

Rainfall in 2019 was a little below the long term average (red line in the chart below). Up until September the year had been extremely dry, but this changed

dramatically with a very wet October and wet conditions persisted until the end of February 2020.





The above chart shows monthly rainfall in 2019 (orange bars) compared with the long term average for each month (blue bars).

Birds

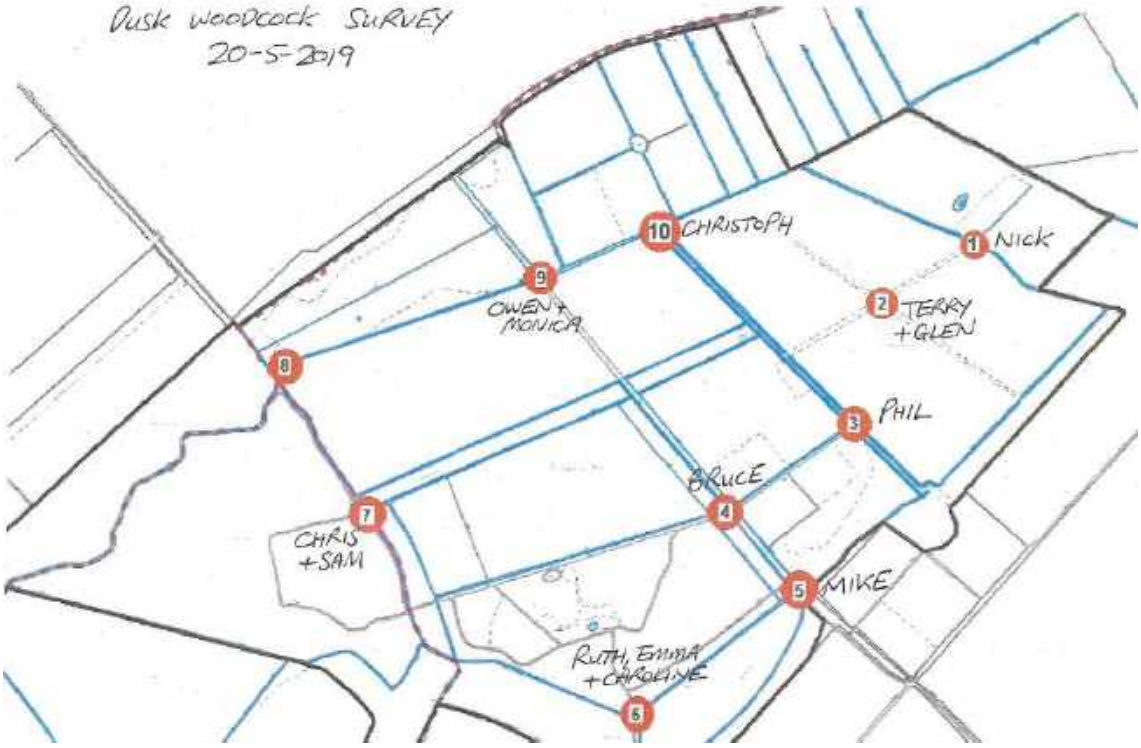
Woodcock survey

The annual dusk survey was carried out on 24 May. Below is a short report of the evening:

Chippenham Fen Dusk Woodcock Survey 20 May 2019

Fortunately the weather this year was much better than last: fine, calm and quite warm, although it dropped rather cool as soon as the sun set - generally ideal conditions as Natural England staff and volunteers gathered at the fen for the annual woodcock survey. The survey began at 8pm but activity was slow at first, with not much roding until about 2020hrs. Recording finished at most points at 2131hrs. Initial impressions were that woodcock activity was less than in previous years, at some points at least.

This year we again recorded woodcock in two ways: using our 'traditional' method of mapping roding birds seen from each point for one minute periods every ten minutes between 2000hrs and 2131hrs, plus recording every woodcock sighting on BTO woodcock survey forms. Between us we covered 9 of the 10 regular points around the fen:

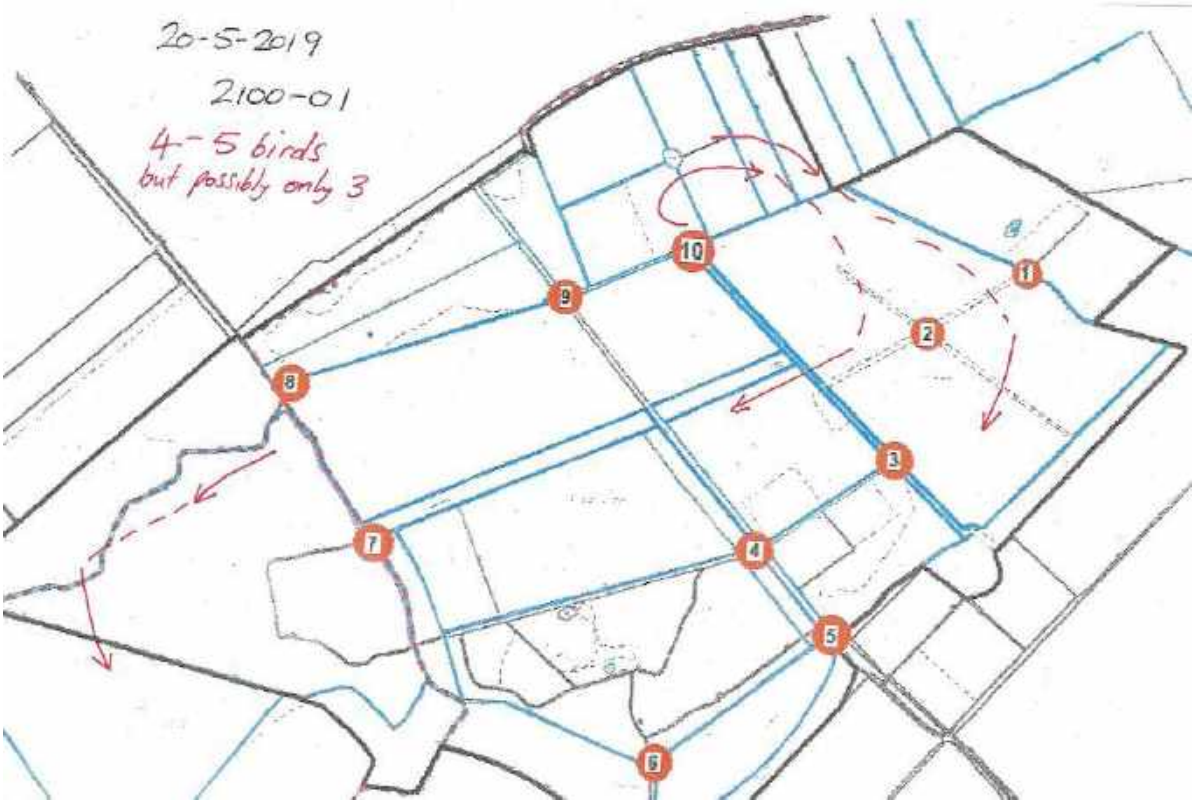


Mapping

We were in position by 2000hrs, but roding activity didn't really start until 2020hrs. The table below summarises the results for the one minute mapping periods:

Time period	Total woodcock contacts mapped	Best estimate of number of different birds involved
2000-01 hrs	0	0
2010-11 hrs	0	0
2020-21 hrs	1	1
2030-31 hrs	5	4
2040-41 hrs	3	1
2050-51 hrs	2	1
2100-01 hrs	6	3
2110-11 hrs	6	4
2120-21 hrs	1	1
2130-31 hrs	5	4

As can be seen, from the mapping of roding flights the estimated maximum number of definitely different birds recorded in any one minute period was 4. However, it is possible that up to 5 different birds were roding between 2100 and 2110, although when all observers maps are combined it is likely that some of the birds were recorded from more than one point, and could have involved just 3 birds. The combined map for 2020-21 shows the direction arrows for all observers, with red dashes joining up arrows that probably relate to the same bird seen from more than one point:



Chris and Sam definitely had four birds, and possibly 5, in the air together in Poors Fen just after 2100, and as other observers also recorded birds elsewhere on the site at this time it is likely

that at peak activity there were at least 7 birds active, although this did not occur during the mapping periods.

BTO survey forms

The table below shows all the woodcock seen and/or heard (recorded contacts) from each point between 2000 hrs and when the survey finished at 2131 hrs . There were some recorded contacts before 2000 and after 2131 hrs, but as in previous years these have not been included in the analysis.

Point	Observer 2019	Single bird contacts	2 birds	3 birds	4 birds	Total contacts 2019	Total 2018	Total 2017	Total 2016	Total 2015
1	Nick	13	2			17	9	14	5	28
2	Terry and Glen	8		1		11	22	29	16	16
3	Phil	27	3	1		36	30	29	45	56
4	Bruce	7	1			9	8	11	7	19
5	Mike	26	2			30			21	
6	Ruth, Emma & Caroline	20	2	1		27	24	34		23
7	Chris & Sam	27	6		1	43	22	28	35	25
8	Not covered								27	16
9	Owen& Monica	13	3				19	33	31	13
10	Christoph	11	1			13	18	27	16	

As can be seen from the table above, the number of recorded contacts at each point varies considerably from year to year. As a rather crude comparison of activity between years, one can calculate the mean number of contacts each year, by dividing the total contacts at all points by the number of points covered:

Year	Total woodcock contacts	Number of points covered	Mean number of contacts per point
2015	180	7	25.7
2016	155	7	22.1

2017	205	8	25.6
2018	152	8	19
2019	205	9	22.8

The amount of activity in 2019 was slightly lower compared to 2015 and 2017, but up on 2016 and last years incomplete survey – so overall there appears no significant decrease, which is good news.

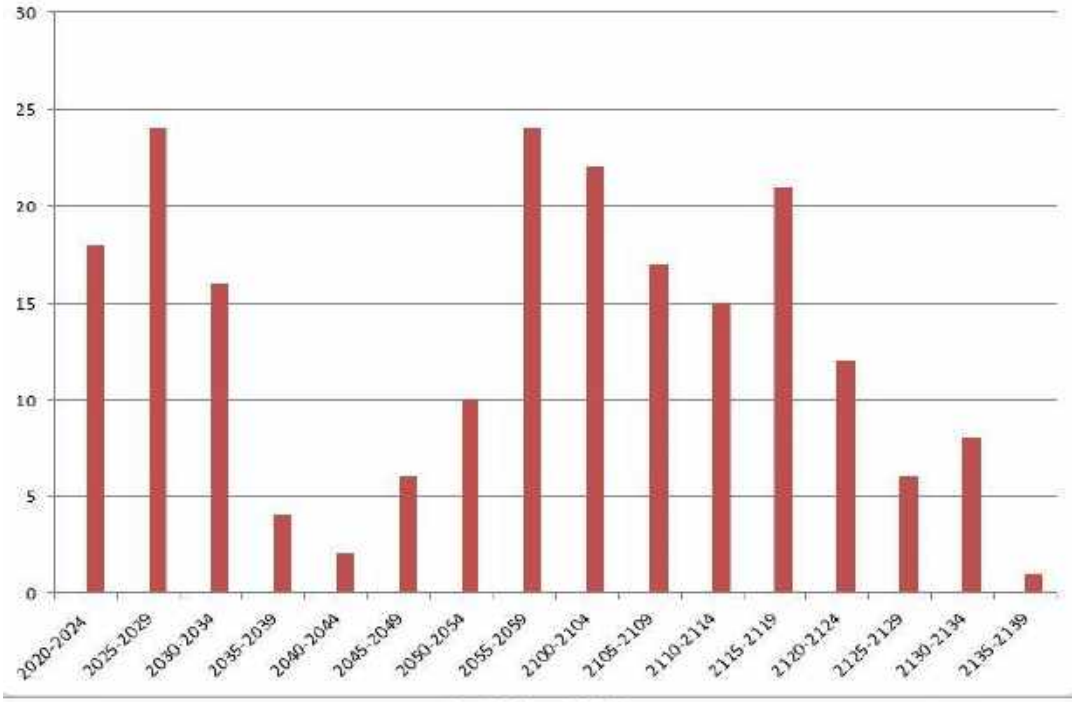
A graph shown on the BTO website shows the relationship between numbers of roding males known to be present and the number of recorded contacts, using data from 43 different woods. The graph is not quite a straight line correlation, but the number of individual males is related to the number of contacts, for example 10 contacts suggests 4 different individual males and 20 contacts 6-7 individual males. The graph gradually flattens out with increasing contacts, so it cannot necessarily be extrapolated that the 43 contacts recorded by Chris and Sam at point 7 represents 10+ individual birds, but it does seem that the number of individual birds recorded at four of the points was probably around 6-7 at least.

Lumping all the woodcock contacts from all the points, there were variations in activity during the evening:

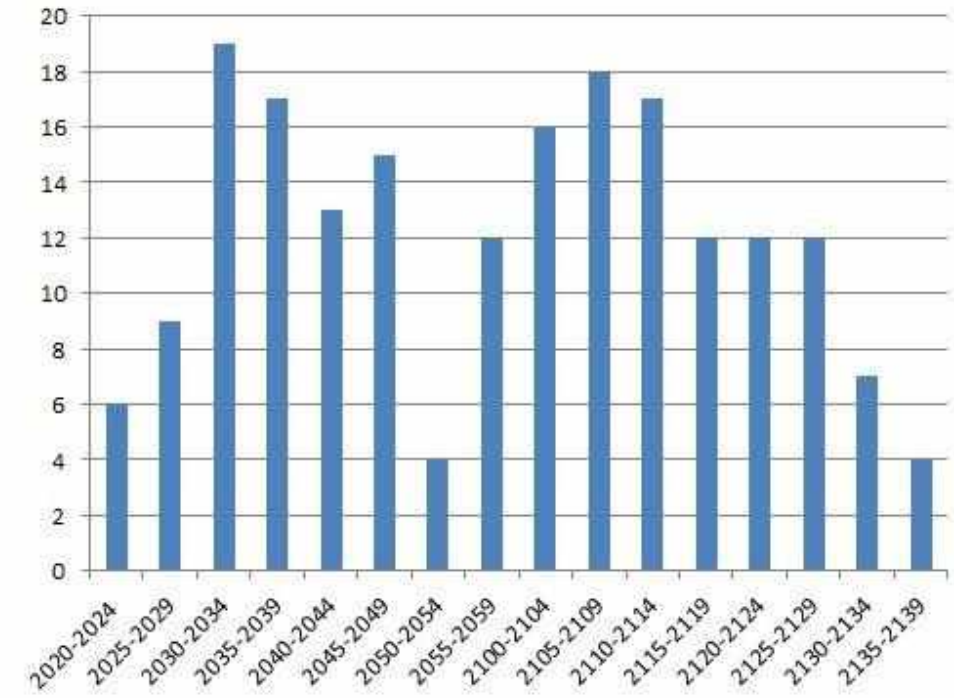
Time period	Woodcock Contacts 2019	Woodcock contacts 2018	Woodcock contacts 2017	Woodcock contacts 2016	Woodcock contacts 2015
2000-2004 hrs	0	0	-	-	-
2005-2009	0	4	-	-	-
2010-2014	0	17	-	-	-
2015-2019	2	13	-	-	-
2020-2024	5	23	0	6	18
2025-2029	21	21	1	9	24
2030-2034	27	13	8	19	16
2035-2039	8	12	19	17	4
2040-2044	5	14	22	13	2

2045-2049	0	6	16	15	6
2050-2054	10	8	11	4	10
2055-2059	17	9	14	12	24
2100-2104	15	5	20	16	22
2105-2109	29	-	14	18	17
2110-2114	16	-	11	17	15
2115-2119	11	-	29	12	21
2120-2124	12	-	16	12	12
2125-2129	15	-	8	12	6
2130-2134	7	-	11	7	8
2135-2139	2	-	5	4	1
2140-2144	3	-	5	-	-

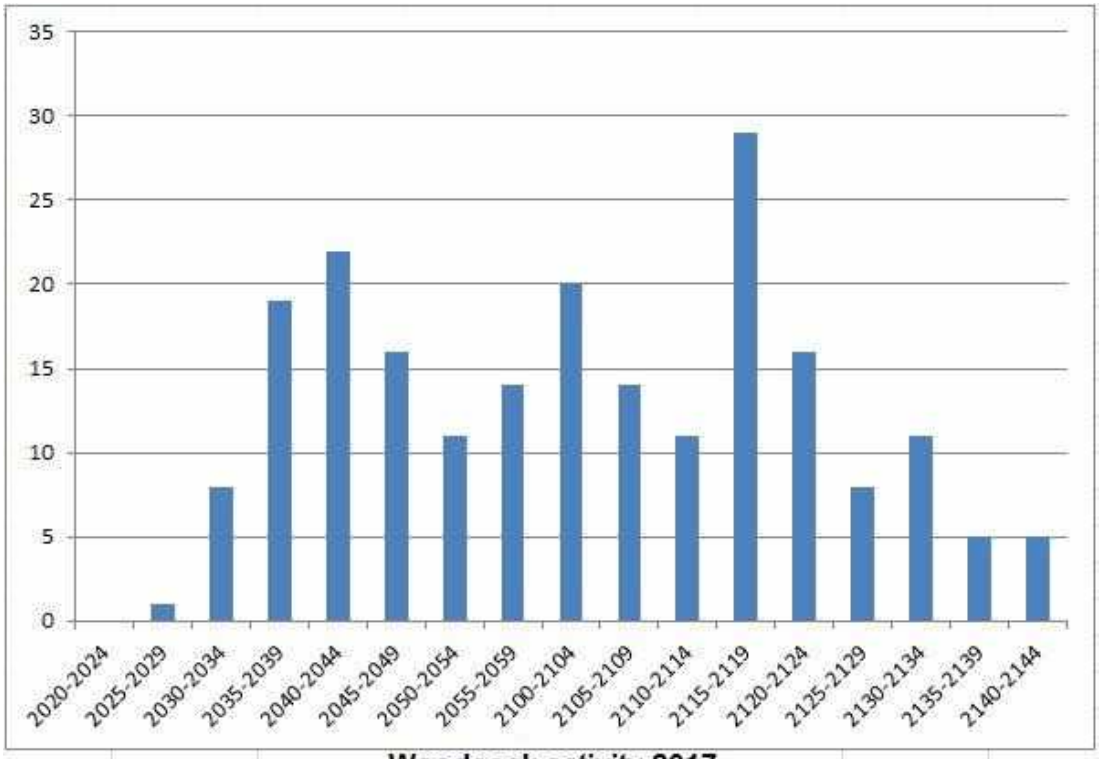
The charts below show woodcock activity in terms of recorded contacts through the evening, for 2015-19.



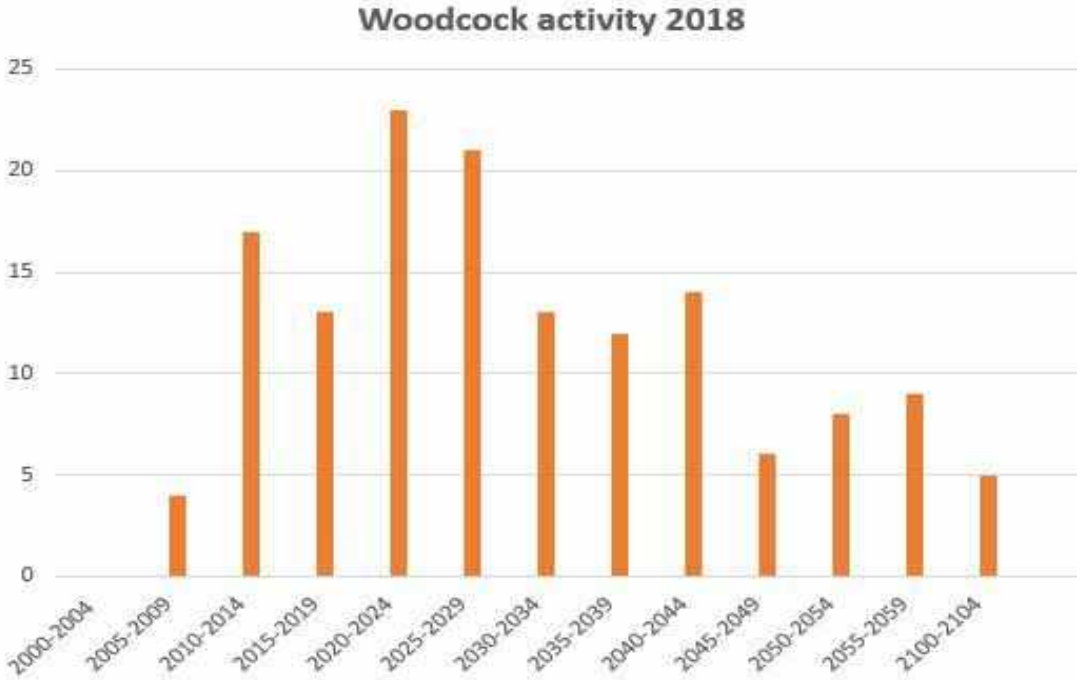
Activity 2015

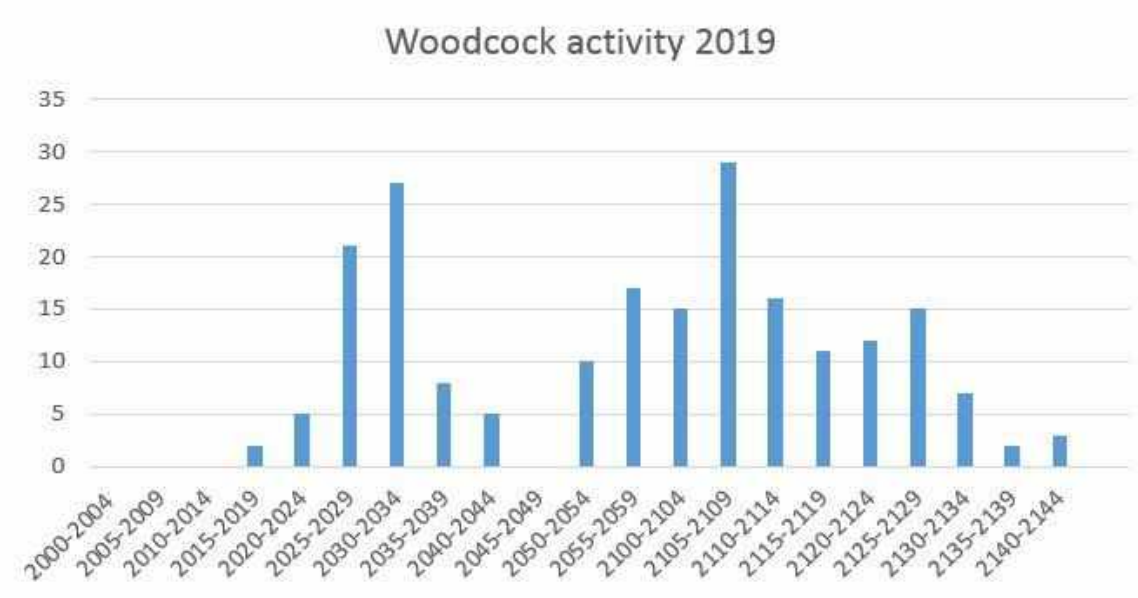


Activity 2016



Woodcock activity 2017





As can be seen from the above chart there was activity around the site for much of the survey, but not really starting until about 2020, and with noticeable peaks around 2030 and just after 2100.

Other species recorded

Hobby	One seen from three points
Tawny owl	2 – heard from point 7 and probable seen at point 1.
Marsh Harrier	Seen by several observers, 2-3 birds
Barn Owl	One seen from point 6
Grasshopper Warbler	2-3 heard
Lesser Whitethroat	One heard from point 9 and point 10
Stone curlew	One heard calling by Owen and Monica from point 9 and by Christoph from point 10. Appeared to be from field immediately north of the footpath, beyond the pine line.
Little Owl	Very scarce on the reserve recently – seen by Christoph at point 10
Cuckoo	Recorded from more than one point – male and female at point 4

Participants

Ruth Angrave, Emma Quick, Caroline Cavill, Nick Sibbett, Bruce Martin, Owen and Monica Marks, Phil Brown, Terry and Glen Riley, Phil Brown, Christoph Zockler, Sam Mortlock, Chris Hainsworth and Mike Taylor

Summary

A pleasant evening with some interesting sightings and with reasonable woodcock activity despite initial impressions that numbers were down. The bulk of the activity did seem to be west of the main footpath, particularly in Poors Fen, but with perhaps reduced activity in Forty Acre Wood.

Many thanks to all who participated on the night – your help was much appreciated – and apologies to those who were not able to make it this time.

Mike Taylor

22 May 2019

Chris Hainsworth, assisted by Sam Mortlock, again repeated the BTO national woodcock survey, counting birds at dusk on three occasions in May and June from a point in Poors Fen.

Bird ringing

Michael Holdsworth, Peter Bircham, Carole Bernard and others continued to ring birds at the Fen during the year, but for a variety of reasons there were less sessions than usual, and these only near the feeders in the shed area in winter and spring. There was no ringing in Poors Fen (standards sessions) this year.

Amphibians

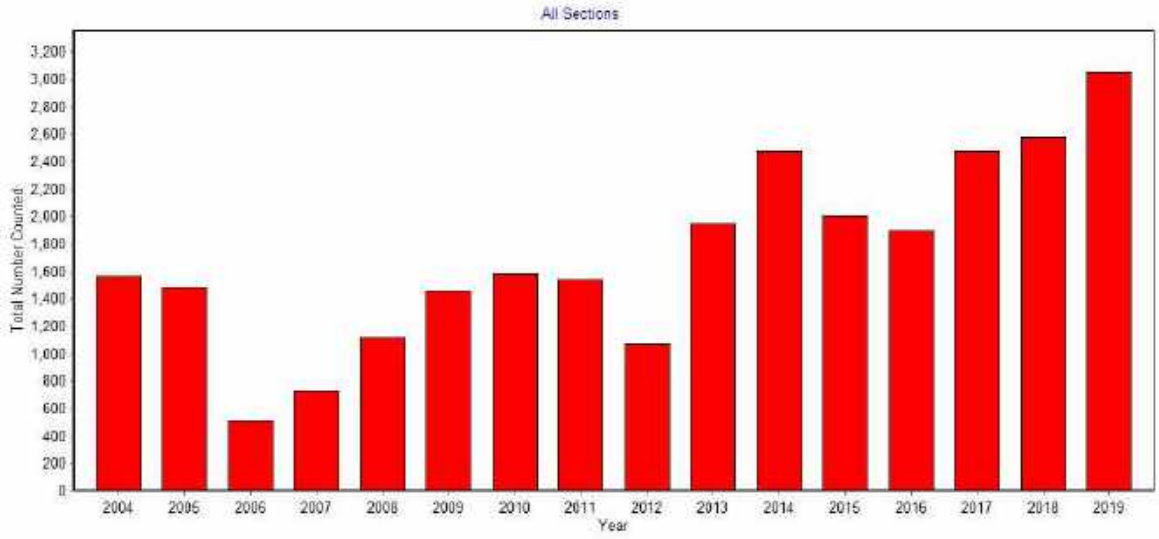
Dr Terry Moore and wife Helen continued to look at amphibians on the Fen in 2019. Brief surveys by NE staff in mid-March revealed a lot of amphibian activity:
Toads 20+ in compartment 2 ditch, 50+ in East Meadow pond, also heard in Poors Fen, compartment 5 and compartment 8.
Frogspawn 50+ clumps in ditch opposite shed, 2 on track near dipwell 13, 10 at collar dam 7 near main bogbean site, 28 on flooded track near Malcolms Pond,

40 on flooded track through compartment 2, 15 in ditch in compartment 1, 5 on track in Poors Fen.
Smooth Newt 2 seen near frogspawn clumps close to Malcolms Pond

Invertebrates

Butterflies

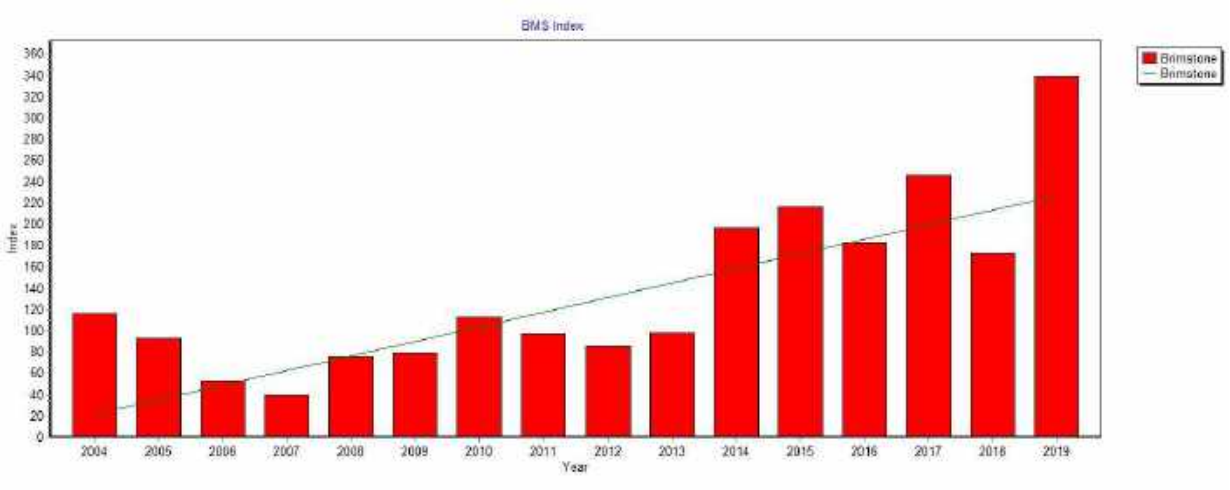
The butterfly transect was carried out weekly between April and September. Data were entered online and onto Transect Walker and sent to the National Butterfly Monitoring Scheme.
2019 proved to be another excellent year for butterflies on the Fen, as shown on the chart below, the total butterflies recorded being the highest since at least 2004. The generally upward trend in numbers since 2012 is notable:

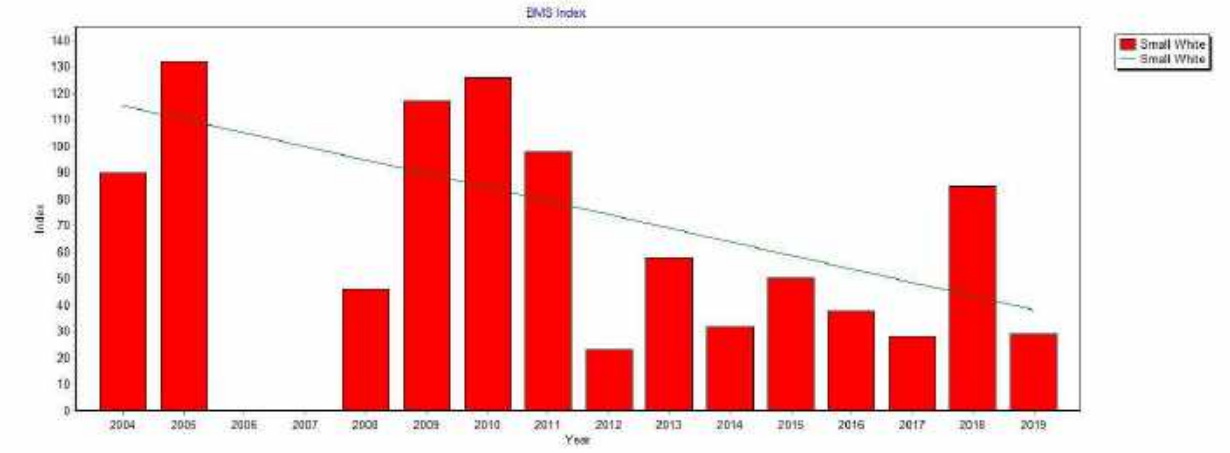


Chippenham Fen Butterfly transect–total butterflies recorded

Of 21 species recorded at Chippenham this year, 10 are showing an upward trend, 9 are relatively stable and two are declining. These are small white and small tortoiseshell – for the latter species it was the worst year since at least 2004.

The charts below show annual indices for some selected species:


BMS Index
Brimstone
Brimstone
Index
Year
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019


BMS Index
Small White
Small White
Index
Year
2004
2005
2006
2007
2008
2009
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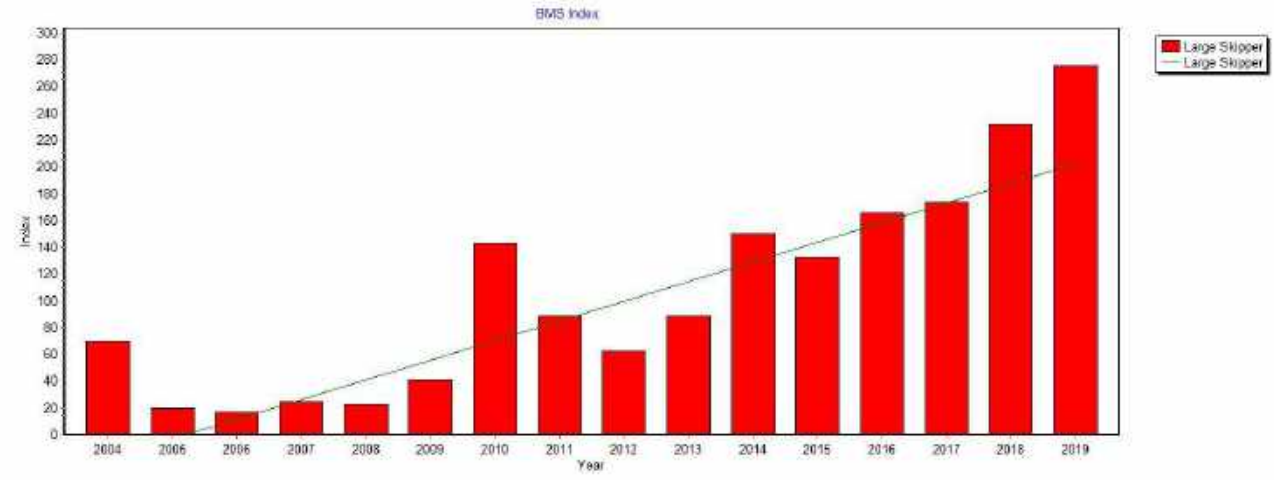
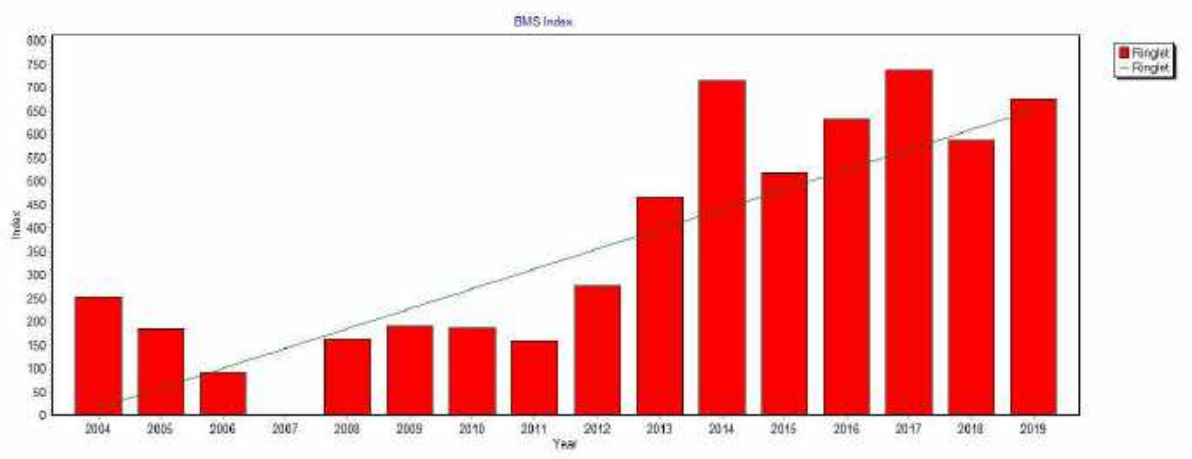
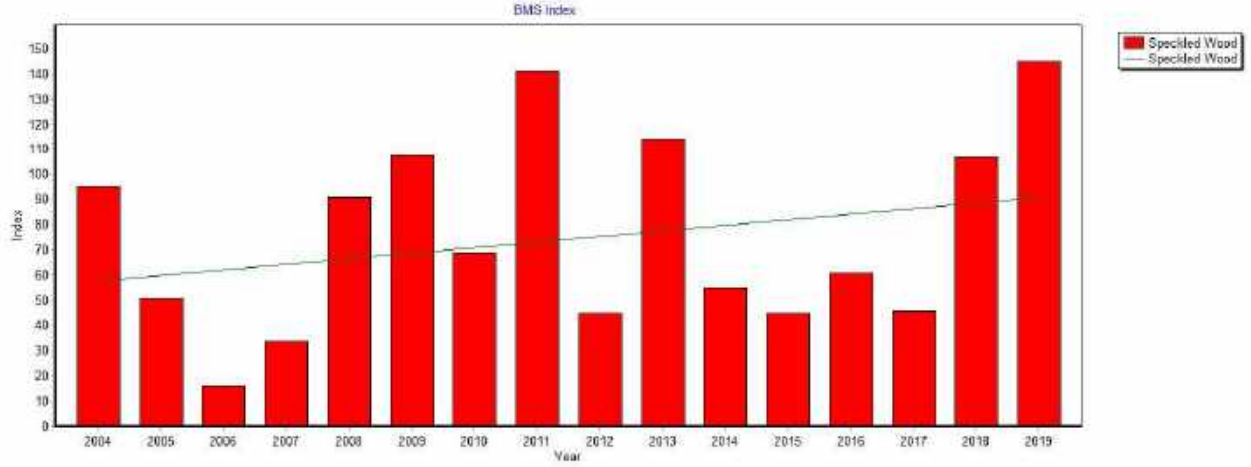
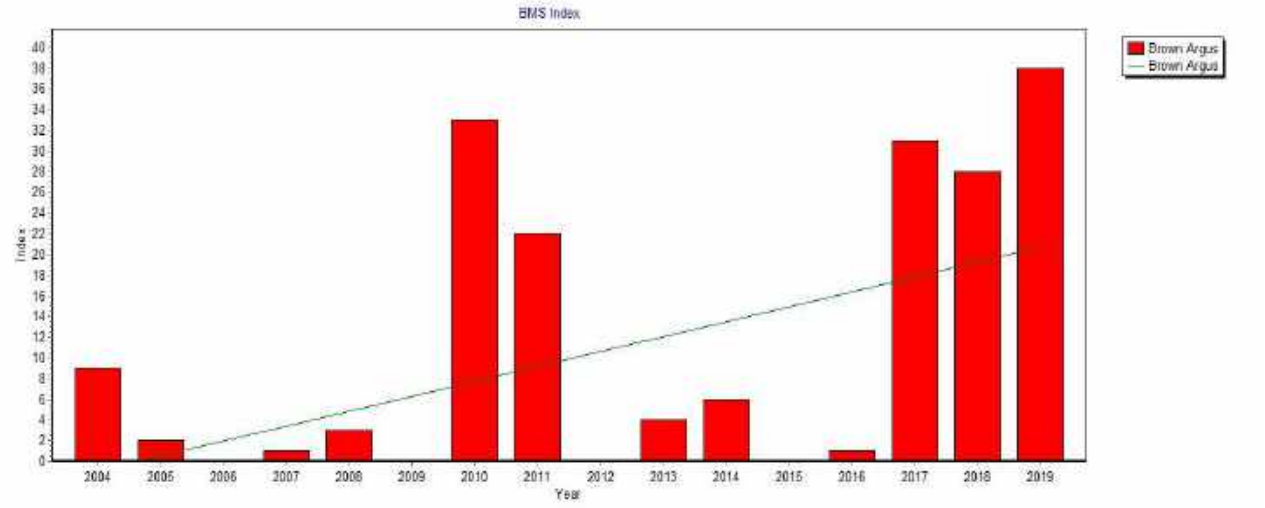
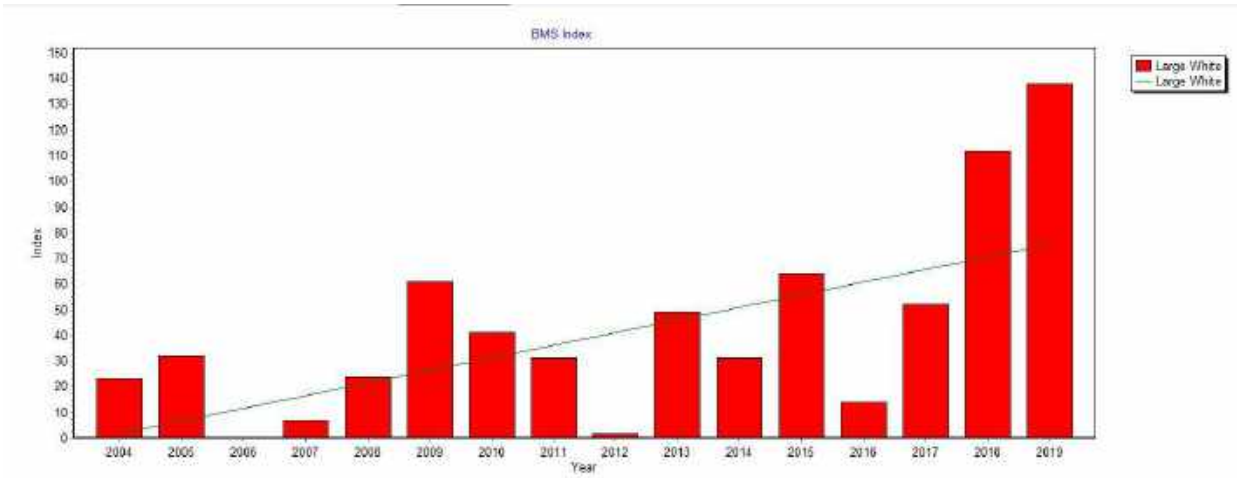
2019

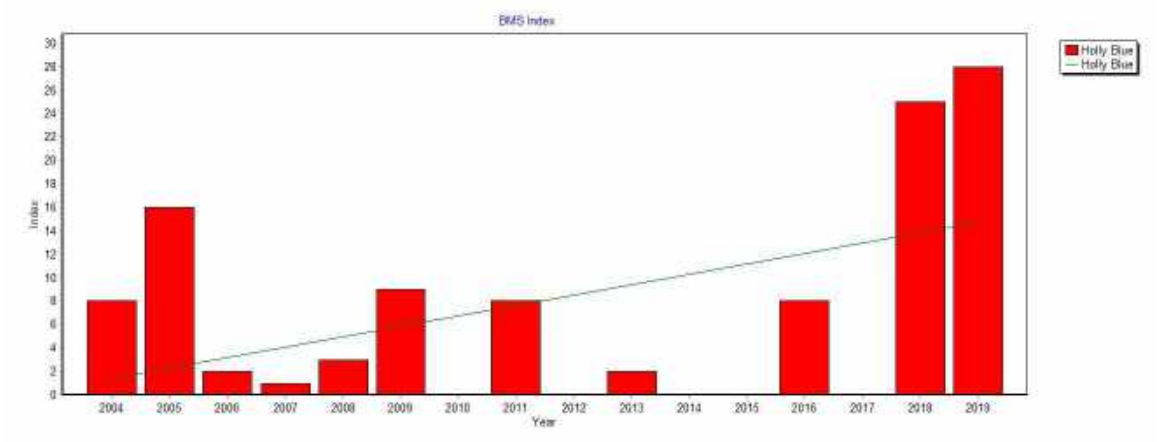

BMS Index
Large Skipper
Large Skipper
Index
Year
2004
2006
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019


BMS Index
Index
Year
Ringlet
Ringlet


BMS Index
Index
Year
Speckled Wood
Speckled Wood


BMS Index
Index
Year
Brown Argus
Brown Argus





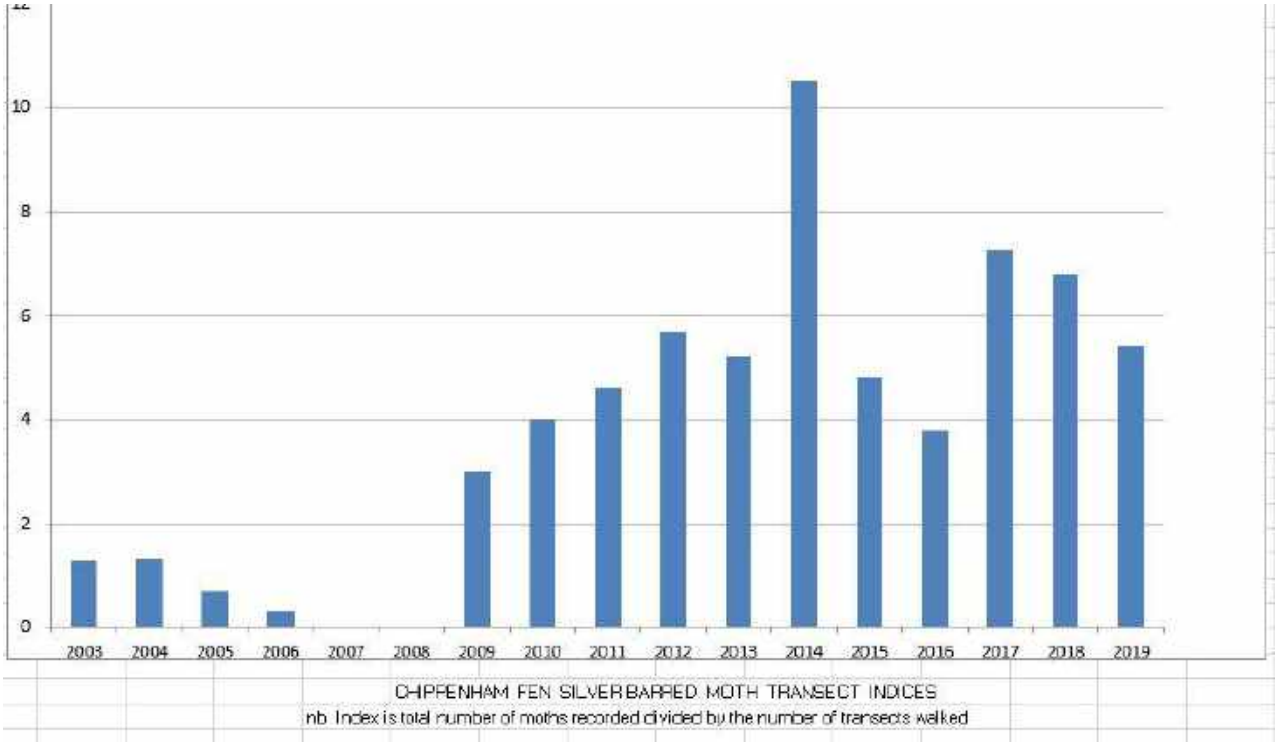
A second mostly fine summer led to several species doing well in 2019. For the second year we had a few sightings of silver-washed fritillary, possibly indicating that the species is becoming established on site.

Moths

We did some light trapping using an actinic trap outside the shed on a few occasions in the spring and early summer.
Thereafter we hosted a lot of visiting moth trappers on site – more than usual.
On 14 June James Harding-Morris and Mark Ward (both of RSPB) and others ran several traps.
Mark Hammond and Keith Tailby made several visits, including an overnight session on 26/27 August when with two others they put out 17 light traps. Large

numbers of moths were recorded with the highlight being three Clifden Nonpareil – a new species for the site.
Cambridgeshire county moth recorder Bill Mansfield made several trapping visits.
On 19/20 June we ran a trap overnight for examination on 20th by Steve Lane, Andy Brown, James Lowen and several others. They were particularly keen to see silver barred and reed leopard – both were seen by the group, including 20+ silver barred 'walked up' in compartment 9.
Sharon Hearle of Butterfly Conservation visited on 13 June to pinpoint the best stands of meadow rue to examine for marsh carpet larvae later in the summer. On 22 July MT and Tom Booth went to RSPB Lakenheath with Sharon to assist in their search for larvae, and on 2 August Sharon returned to Chippenham for an intensive search with MT. Despite there being a profusion of meadow rue seed heads, particularly in East Meadow, we did not find a single marsh carpet larva.

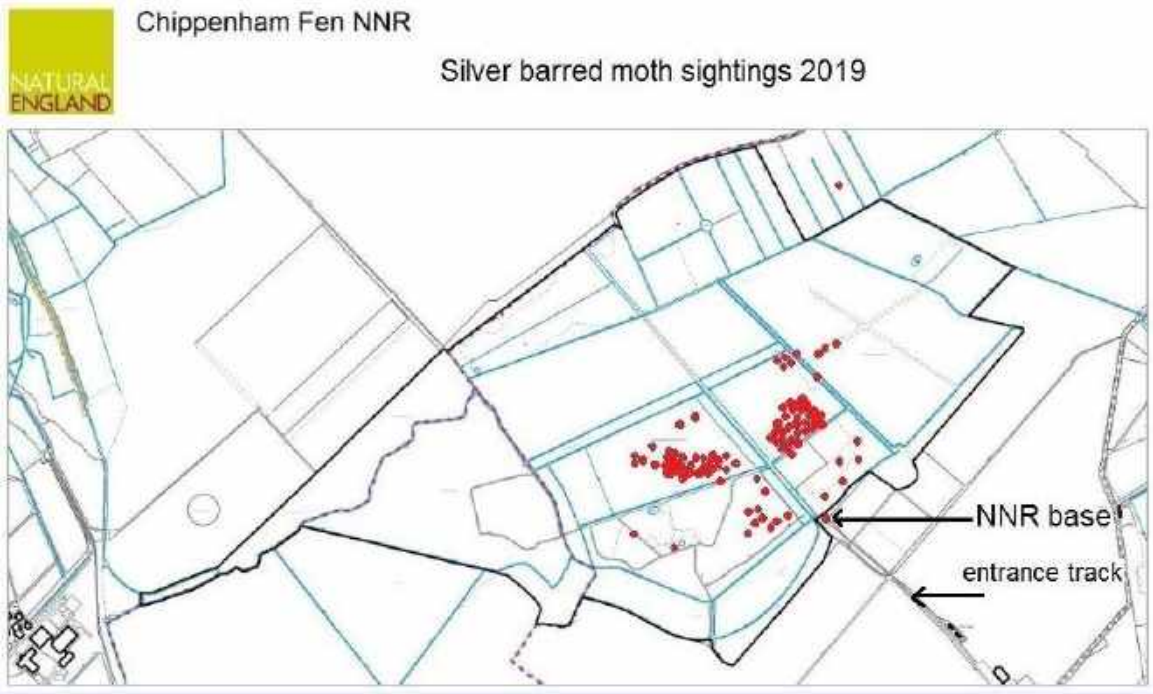
Silver barred
The first silver barred moth was seen on 14 May. Overall it was an average year on the transect:



Silver barred moth annual indices

The index in the above chart is the total number of moths recorded divided by the number of transects walked during the season.

On 6 June we carried out a silver barred distribution survey across the reserve. Large numbers were found in compartment 9 with, as expected, none at all in its former stronghold on north meadows. Very surprisingly a lone individual was found in the SSSI meadows on 18 June. The map below summarises silver barred sightings in 2019:



Compartments 8-11 in the central part of the fen are clearly the current stronghold.

	First sightings	Last sightings	Flight penod days	Maximum Count on single transect
2003	May-06	Jun-24	49	6
2004	May-16	Jul-20	65	5
2005	May-25	Jul-14	50	4
2006	Jun-06	Jul-11	35	1
2007				
2008				
2009	May-21	Jun-15	25	6
2010	May-24	Jul-07	44	11
2011	May-03	Jun-30	58	12
2012	May-22	Jul-20	59	11
2013	Jun-04	Jul-16	42	14
2014	May-16	Jul-07	42	20
2015	May-22	Jul-22	61	16
2016	May-23	Jun-27	35	12
2017	May-16	Jun-26	41	15
2018	May-24	Jul-10	47	22
2019	May-14	Jul-12	59	14
Means	May-20	Jul-07	47 days	

Chippenham Fen silver barred transect summary data

Plants

Cambridge milk parsley

We undertook the Milk parsley survey on Chippenham Fen between 30 July and 5 August 2019. Below is a short report:

We undertook the Cambridge Milk Parsley survey on Chippenham Fen between 30th July and 5th August 2019. After a very dry year in 2018, rainfall has continued to be below average into 2019.

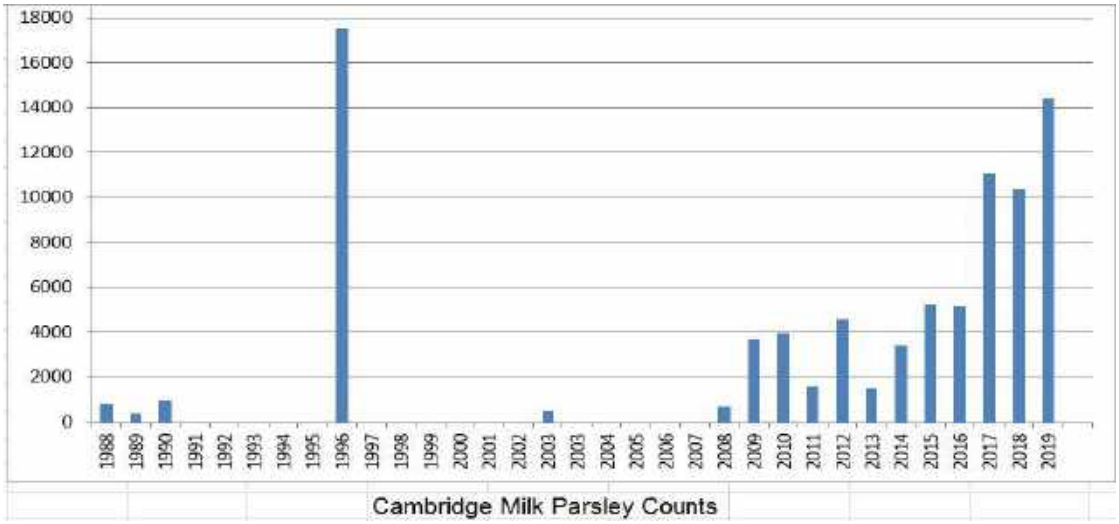
Chris Hainsworth, Michael Taylor and NNR apprentice Tom Booth carried out the counts using the usual method of walking in parallel lines and counting plants in flower. Some plants had multiple flower heads and these were counted as 1 record, as were plants (usually the larger specimens) which had 2 or more stems. Plants generally seemed taller and more robust this year.

A total of 14,387 flowering plants were recorded across the site – this is the second highest count since our records began in 1988. The number of flowering plants was up in most areas compared with last year, in some cases significantly so. There was a large increase in Compartments 1 and 2, but the bulk of the population (74%) continues to be found in Compartment 10.

Grazing by cattle in compartment 1 (other than compartment 1 west) and by buffalo in the black bog rush area of compartment 11 possibly reduced numbers of flowering plants in these areas.

Mike Taylor

9/8/2019



M13 monitoring

Sue Shaw and Ros Tratt did not monitor quadrats in M13 areas this year.

Botanical recording

Alan Leslie, the botanical recorder for Cambridgeshire, visited the fen on several occasions.

Orchids

NNR volunteers Terry and Helen Moore spent some time surveying orchids.
NE staff made counts of selected species as follows:

Twayblade	40 acre ride	260
	East meadow	48
	Compt 1	50
	Baxter East	14
	Glade near shed	13
Marsh helleborine	Baxter East	14
	Compt 1	1
	Compt 2	5
Common spotted	Glade near shed	1
Bee Orchid	Compt 1	18
	Baxter East	3
	Alistairs plot	7
Marsh Fragrant	Baxter East	37
	Compt 2	56
	Compt 1	69

All the marsh fragrant flower in compartment 2 near dipwell 3 were eaten off by 18 July, presumably by deer.

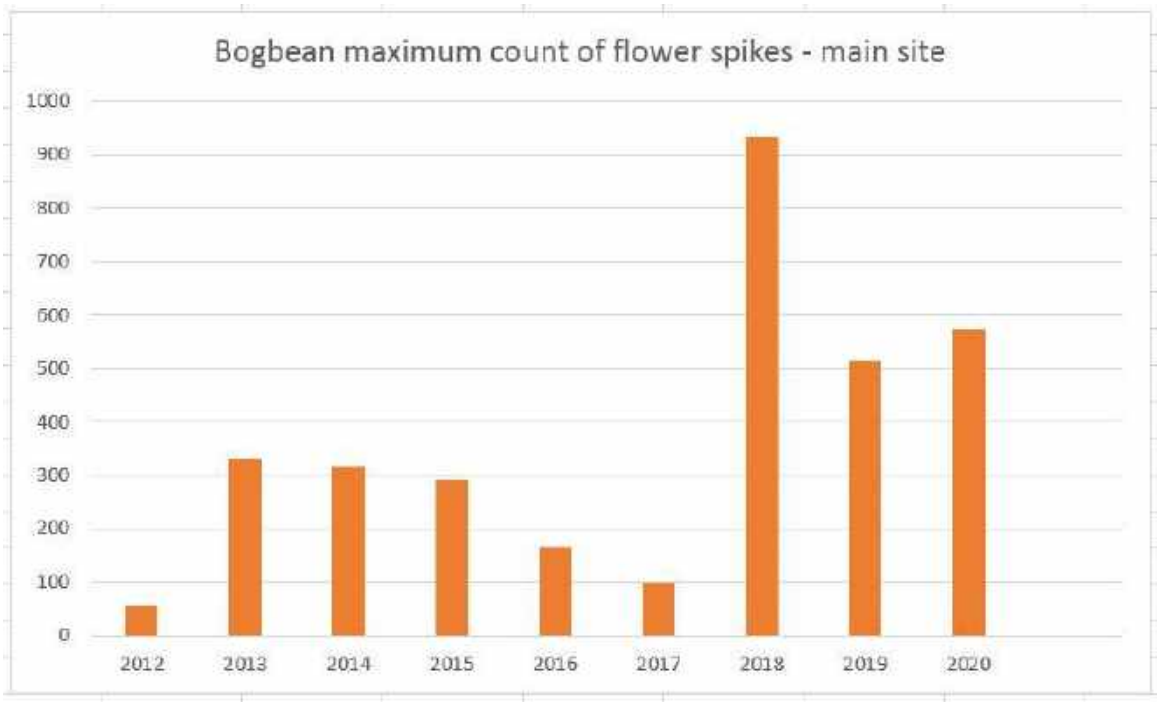
A white orchid was found in compartment 1 on 28 June. CH wrote a piece on it for the NE weekly roundup:
Mike Taylor recently spotted a beautiful white orchid in compartment 1 at Chippenham Fen NNR whilst out undertaking a H&S structures check . Its pale yellow leaves and pale white flower got our minds racing – could this be the rare and elusive Yellow Early Marsh; Dachtyloriza Incarnata Ochreluca? Last seen 15 years ago on the fen?
Ochreluca is a really rare race of the early marsh orchid and Chippenham is quoted in many orchid books as one of the best sites to see it in England. We enthusiastically sent pictures to our network of orchid enthusiasts. Sadly our dreams proved to be fleeting- the flower wasn't quite right, it was a little too late in the season. Finally clarification from the BSBI orchid referee who suggested it

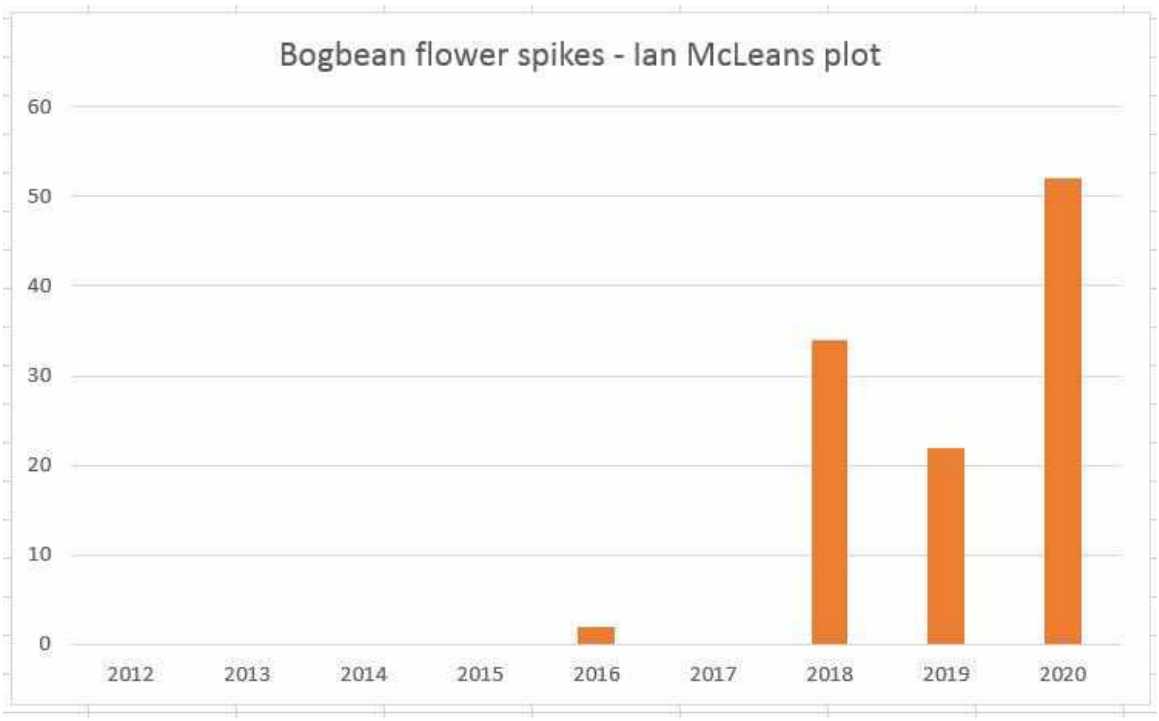
was an albino variant of Southern Marsh Orchid, which is a notable find in its own right. 'True albinos are howlingly rare for the tetraploid marsh-orchids' The only other know case is in grassland between the dunes and the golf course at Holme-next-the-Sea. So although it wasn't what we hoped for it was still an excellent record and exemplifies the special wildlife that can still be discovered on our NNRs.

Adderstongue
100+ were counted on 40 acre ride and 200+ on Baxter East in early May

Bogbean

The first flower was noted on 30 April. 514 flower spikes were counted on 17 May, considerably down on 2018 – possibly as a result of two very dry summers. 22 flower spikes were counted on Ian McLeans plot in compartment 6. The charts below show the annual counts since we started monitoring in 2012 (2016 for Ian McLeans plot):





The species seems to be increasing on Ian McLeans plot. On the main area the number of flowering spikes is quite variable and there seems to be a slight correlation, as one might expect, between the number of flower spikes in a particular year and the previous years annual rainfall.

Ash die-back

Signs of ash-dieback continued to be obvious around the reserve.

Teacomposition H2O Project

The two year tea bags were retrieved on 8 July and sent off for analysis. After two years buried finding the tea bags proved quite challenging.

CEH/NE long term monitoring network (LTMN)

MT carried out the breeding bird survey (BBS), using the BTO breeding bird methodology, and the required two visits were made on 21 April and 25 May. Below are summarised the totals for the early and late visits over the last six years:

Chippenham Fen Breeding Bird Survey Annual Summary Totals

nb figures given are total birds of each species recorded on each visit in all distance categories, including flight records except for casual fly over records of species with clearly no association with fen eg Lesser black backed gull

Early Visit	20/04/2013	22/04/2014	23/04/2015	21/04/2016	29/04/2017	26/04/2018	21/04/2019
Blackbird	8	9	8	9	11	6	9
Blackcap	7	5	11	5	9	14	12
Blue Tit	17	12	19	17	22	18	27
Bullfinch					2		
Buzzard	2	1	1	2	1		
Canada Goose		12	3	2	4	5	5
Carrion crow	2	3	5	6	11	7	8
Chaffinch	4	4	6		1	1	2
Chiffchaff	12	12	16	15	18	8	15
Coal Tit	3	1	3	5	2	3	3
Collared Dove							2
Cuckoo			1		1		1
Goldcrest	1	1	1	1		1	2
Grasshopper Warbler	4	1	4	7	9	5	6
Great spotted woodpecker	6	3	2		3	5	3
Great Tit	9	11	15	4	13	16	16
Green Woodpecker	6	4	6	4	4	2	6
Grey Heron	1					1	2
Greylag	2	4	7		8	2	1
Jackdaw	11	2	16	7	15	11	6
Jay			3	1	1	3	2
Lapwing			1			1	
Lesser Redpoll				3			
Lesser Whitethroat						1	
Linnet					4	4	3
Long tailed Tit			4	6	8	6	8
Magpie	1		1		5	3	3
Mallard	2	1	2	4	6	1	7
Marsh Harrier			1	2	2	2	2
Marsh Tit		1	1	1			1
Mistle Thrush	1	1					
Moorhen	2	2	2		1	2	1
Nuthatch	5	1	1	2	1	1	2
Pheasant	3	7	11	8	10	10	11
Reed Bunting	8	10	7	10	5	4	5
Reed Warbler		3	4	1	7	6	3
Robin	12	16	15	14	12	5	8
Rook	7		1		1	2	2
Sedge Warbler	8	14	11	11	18	7	7
Shelduck						3	
Skylark	2	1	2	2	3	2	4
Snipe	1						
Song Thrush	1	2	5	3	2	6	5
Sparrowhawk						2	
Stock Dove	3	2	2	3	2	2	8
Treecreeper	6	2	3	2	2	2	4
Water Rail	2		2		1	1	1
Willow Warbler		1			1	1	
Woodpigeon	32	19	33	30	26	54	37
Wren	34	39	51	41	42	52	44
Yellowhammer		1					2
Birds	225	206	289	228	295	290	296
Species	34	34	39	31	39	42	41

Late Visit	05/06/2013	30/05/2014	21/05/2015	27/05/2016	31/05/2017	26/05/2018	25/05/2019
Blackbird	10	12	14	15	7	14	12
Blackcap	4	6	3	6	6	13	9
Blue Tit	8	21	15	13	12	13	21
Bullfinch				2	2		
Buzzard			1	1	3		2
Canada Goose			3	2		2	
Carrion crow		7	4	5	7	6	13
Chaffinch	8	5	3	2	4	2	3
Chiffchaff	8	10	15	14	9	9	17
Coal Tit	1	1	1	2	2	2	6
Cuckoo	3	2	1	1	2	2	2
Dunnock			1				
Goldcrest		3			3		2
Goldfinch					2	1	3
Grasshopper Warbler	3	4	2	2	4	1	6
Great spotted woodpecker	2	3	3	1	2	5	7
Great Tit	2	7	13	6	7	8	13
Green Woodpecker	3	9	1	1	1	2	1
Grey Heron					1		
Greylag	2		3	2	2	1	
Hobby					1		1
Jackdaw	17	18	14	15	7	11	17
Jay	2			1	1	1	
Lapwing		3					
Lesser Whitethroat			1	1			1
Linnet				2			3
Long tailed Tit	8	2	20		5	10	15
Magpie	1	2	2	1	4		2
Mallard	2	1	4	2	3	3	4
Marsh Harrier	1		1	1	4	3	3
Marsh Tit			1				
Mistle Thrush							
Moorhen		1	2		1	1	
Nuthatch	1		1	3			2
Pheasant	5	5	5	7	12	8	9
Reed Bunting	7	7	15	8	9	6	7
Reed Warbler	19	20	15	16	22	22	30
Robin	7	15	6	11	14	14	13
Rook	8						3
Sedge Warbler	4	8	7	4	5	5	8
Skylark	2	3	2	3	3	2	5
Snipe							
Song Thrush	5	2	3	5	5	2	6
Spotted Flycatcher					1		
Stock Dove	3	1	2	4	5	3	7
Treecreeper		3	1	3	2	5	4
Tufted Duck							3
Water Rail	1	2				2	
Whitethroat			1		1	1	
Willow Warbler	2						
Woodpigeon	31	25	23	39	28	35	41
Wren	26	36	39	44	34	45	40
Yellowhammer							
birds	206	245	251	249	244	260	340
Species	32	31	37	35	39	34	37

birds	206	245	251	249	244	260
Species	32	31	37	35	39	34

Species surveillance (Biodiversity 2020 s.41 species)

Grey carpet moth
There were no records this year.

Ochroleuca
Despite searches in the last known location in compartment 2, no flowering plants were found. The species has not been seen in flower here since 2004.

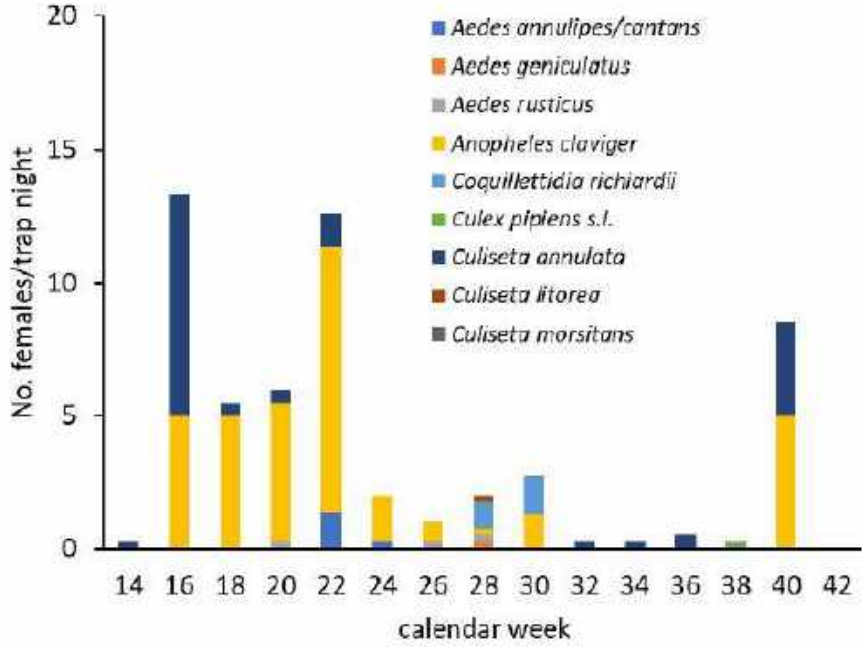
Rossers sac spider
On 18 October we ran a *Clubiona rosserae* workshop at Chippenham. Attendees included Dr Helen Smith, Alan Thornhill (spider recorder for Suffolk), SWT Redgrave staff and several other arachnologists, both local and from further afield. After an introductory power-point presentation most of the day was spent searching litter piles and other vegetation in the known hot-spot in compartment 8. None were found in litter piles, but eventually 2 females and a male were found on tussocks in the buffalo grazed section of compartment 8.

Public Health England Mosquito monitoring project

We again participated in the Public Health England project to monitor mosquitos at various sites around the country, which has been running since 2010. The single trap behind the workbase was run continuously every other week between April and October and the catches sent away for identification. Mosquito numbers were massively down with only 197 being caught compared with over 4000 in 2018, presumably due to the very dry conditions.
A report on the species caught at Chippenham in 2019 was supplied by Dr Ben Cull:

Nationwide Mosquito Survey 2019

Chippenham Fen



Mosquito species	Total caught
Anopheles claviger	123
Culiseta annulata	52
Coquillettidia richiardii	10
Aedes annulipes/cantans	5
Aedes rusticus	3
Aedes geniculatus	1
Culex pipiens s.l.	1
Culiseta litorea	1
Culiseta morsitans	1
Total	**197**

In 2017 Dr Frances Hawkes of wetlandLIFE carried out sampling of mosquitos at Chippenham, and we received her report this year:

Chippenham Fen National Nature Reserve – survey of adult and larval mosquitoes 2017

Thank you for letting us survey adult and larval mosquitoes at Chippenham Fen in 2017. Across the wetlandLIFE project, we have collected and identified over 30,000 British mosquitoes from sampling at twelve English wetlands between 2017 and 2018. Chippenham Fen was one of the most species rich sites we surveyed. Based on the data we collected here and elsewhere, we are now preparing a handbook for wetland managers on the ecology of British mosquitoes. This will include a tool to help identify habitats where certain species of mosquito may expect to be found, which can be used in developing habitat management plans, responding to public enquiries, planning wetland expansion, creation and restoration and in compiling complete biodiversity audits. We plan to make this freely available and we will share details about the guide when it is published.

In the meantime, here is a summary of the mosquito fauna we found at Chippenham Fen.

Adult mosquito species collected from Trap 1 ("NRI")

Lat: 52° 17' 45"N
Lon: 00° 24' 39"E

- *Aedes cantans*
- *Aedes caspius*
- *Aedes cinereus*
- *Aedes geniculatus*
- *Aedes sticticus*
- *Anopheles claviger*
- *Anopheles plumbeus*
- *Coquillettidia richiardii*
- *Culiseta annulata*
- *Culiseta morsitans*

Adult mosquito species collected from Trap 2 ("PHE", located at the NE office)

- *Aedes cantans*
- *Aedes cinereus*
- *Aedes geniculatus*
- *Aedes rusticus*

- *Aedes sticticus*
- *Anopheles claviger*
- *Anopheles plumbeus*
- *Coquillettidia richiardii*
- *Culiseta annulata*

Numbers of adult species across the sampling period (May-Oct 2017):

	Dates: 1 week window	Aedes cantans	Aedes caspius	Aedes cinereus	Aedes geniculatus	Aedes rusticus	Aedes sticticus	Anopheles claviger	Anopheles plumbeus	Coquilletidia richiardii	Culiseta annulata	Culiseta morsitans	Total
Chippenham NRI - 2017		**22**	**3**	**387**	**104**	**0**	**13**	**1302**	**1**	**45**	**23**	**9**	**1909**
16	18 - 21 Apr												
17													
18	2 - 5 May												
19													
20	15-19 May							6					6
21													
22	30 May – 2 Jun							20					20
23													
24	12-16 Jun	2	1	31	61			28			1	3	127
25													
26	26-30 Jun			26	4			41		9		3	83
27													
28	10-14 Jul	3	1	20	1			23		15	2	2	67
29													
30	24-28 Jul	14	1	30	22			220		14	7	1	309
31													
32	7-11 Aug												944
33													
34	21-25 Aug	1		180	13		8	726	1	7	8		212
35													
36	4-8 Sep	2		79	3		3	124			1		99
37													
38	18-22 Sep			20			2	75			2		12
39													
40	2-6 Oct							12					
41													
42	16-20 Oct			1				27			2		30
Chippenham PHE - 2017		**43**	**0**	**1**	**55**	**10**	**1**	**604**	**23**	**153**	**62**	**0**	**952**
16	18 - 21 Apr												
17													
18	2 - 5 May							7			5		12
19													
20	15 - 19 May					2		32			3		37
21													
22	30 May – 2 Jun												
23													
24	12-16 Jun	4		1	32	6		74	3		7		127
25													
26	26-30 Jun	1			6			22	1	40	3		73
27													
28	10-14 Jul	23			14	2		53	6	63	5		166
29													
30	24-28 Jul	12			1			44		38	13		108
31													
32	7-11 Aug	1					1	6	3	11	2		24
33													
34	21 - 25 Aug	1			1			36	5	1	1		45
35													
36	4-8 Sep	1						40	2		6		49
37													
38	18-33 Sep				1			55	3		12		71
39													
40	2-6 Oct							201			3		204
41													
42	16-20 Oct							34			2		36

Larval samples:

Sampling area	Lat/Lon	May 2017	July 2017	September 2017
Partially sunlit vegetated ditch	52° 17' 46" N 0° 25' 10" E	0	1 *An. claviger*	3 *An. maculipennis* s.l.
Small pond	52° 17' 48" N 0° 25' 04" E	0	0	0
Shaded woodland ditch near spring	52° 17' 38" N 0° 24' 58" E	41 *Cx. pipiens*	0	0
Bogbean bog	52° 17' 44" N 0° 24' 39" E	1 *Cs. annulata*	0	3 *Cs. annulata* 14 *An. maculipennis* s.l.
Wet woodland	52° 17' 44" N 0° 24' 38" E	1 *Cs. annulata*	0	4 *Cs. annulata*
Malcolm's saw sedge pond	52° 17' 50" N 0° 24' 33" E	0	0	0
Sunlit open vegetated ditch	52° 18' 02" N 0° 24' 43" E	0	0	0
Grass sedge beds	52° 17' 58" N 0° 24' 55" E	0	0	14 *Cx. pipiens*

Summary of most commonly implicated nuisance mosquitoes reported in the UK, according to survey of 221 Local Authorities in 2009:

Species	Distribution	Aquatic habitats	Public health concern
Anopheles maculipennis sensu lato	Widespread	Open sunlit permanent pools of fresh or slightly brackish water	Can cause biting nuisance, especially local to coastal populations; the *atroparvus* member of the complex is the historical malaria vector in the UK
Culiseta annulata	Widespread	Wide range of permanent and temporary wetlands and container habitats	A common nuisance species and conspicuously large; its striped legs are often confused with invasive species
Aedes cantans	Widespread	Shaded pools and ditches in wet woodland subject to drying and rewetting	Serious nuisance pest; will bite throughout the day and at dusk

Miscellaneous species records

Butterflies and Moths

The first butterfly of 2019 was brimstone on 25 February.
A hummingbird hawk moth was seen on the butterfly transect on 29 July.

Odonata

The first emerging damselflies were noted on 18 April. A pair of Hairy dragonflies were observed mating on Pigeon Ride on 6 June.

Other invertebrates

Wasp spider sightings continued to increase, with sightings throughout the reserve.
Ivan Perry and Mark Welch separately visited the fen on a number of occasions to record flies .
In July it was brought to our attention that there was a huge population of red-clayed crayfish in the River Snail, and there was concern they might have invaded the water courses at Chippenham. We operated two crayfish traps for a number of weeks, but fortunately did not catch any crayfish.

Visitors/Meetings/Events

CH led botany walk for Terry and Helen Moore and 10 members of U3A botany group on 1 July.

Tim Pankhurst visited on 8 July.

CH/Tom Booth led guided walk for 9 members of Barton Mills Wednesday Club on 17 July.

Hottest UK day ever on 25 July – 38 deg C recorded at Chippenham, 38.7 deg C in Cambridge.

Brecks Team meeting at Fen on 16 October.

7 members of NWT field staff visited on 26 November.

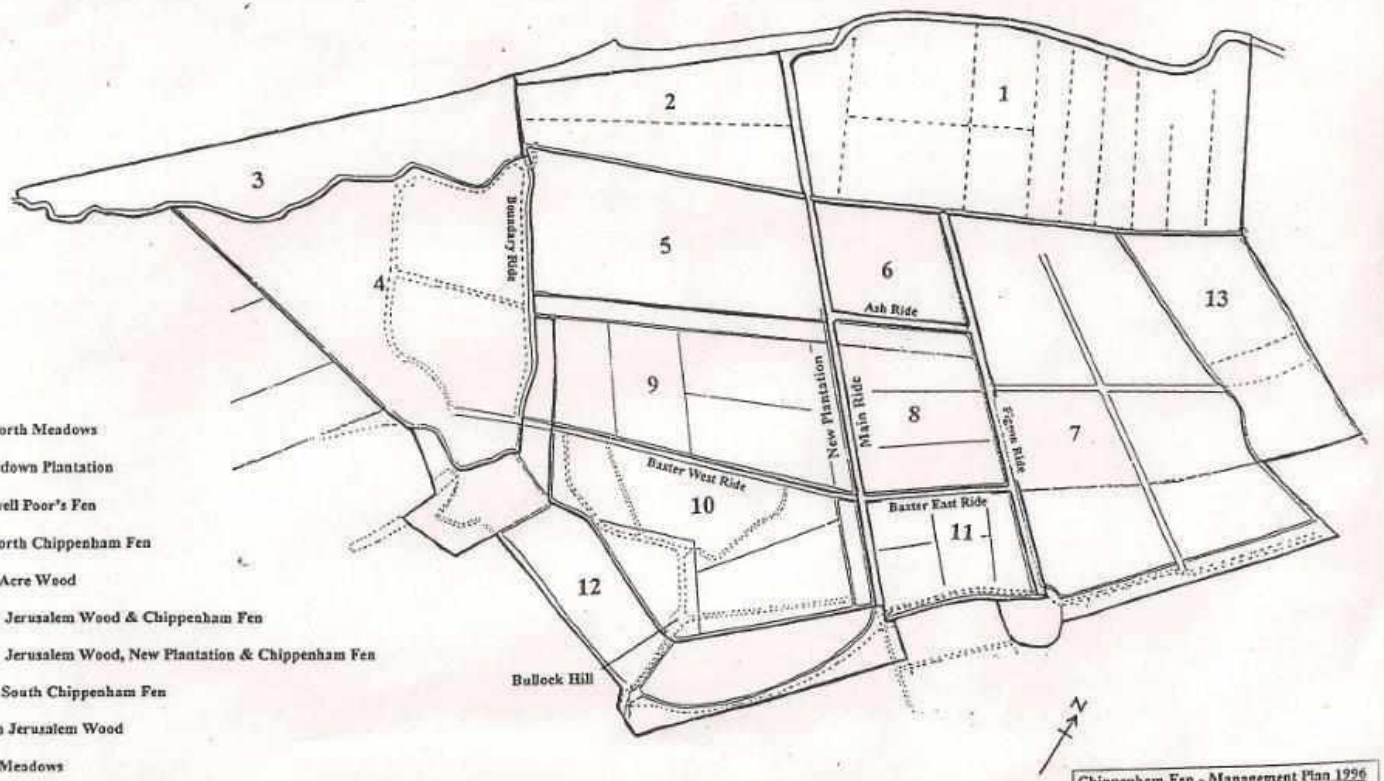
Management plan advisory meeting at Chippenham on 31 January. 11 participants, including Ian Diack, Kate Fagan, Alan Leslie, Dave Rogers (RSPB)

NNR Apprentice

Tom Booth completed his apprenticeship with us on 25 September. During his time with us he was a big help with management and survey work and a valued member of our small team. Since leaving Chippenham, Tom secured winter work with NE on the Somerset NNRs and then in early spring was successful with an application for a full time reserve post at NWT East Wretham.

Michael Taylor
Reserve Manager
April 2020

MAP 1 COMPARTMENTS



1 & 2 - North Meadows

3 - Underdown Plantation

4 - Snailwell Poor's Fen

5 & 6 - North Chippenham Fen

7 - Forty Acre Wood

8 - North Jerusalem Wood & Chippenham Fen

9 - North Jerusalem Wood, New Plantation & Chippenham Fen

10 & 11 - South Chippenham Fen

12 - South Jerusalem Wood

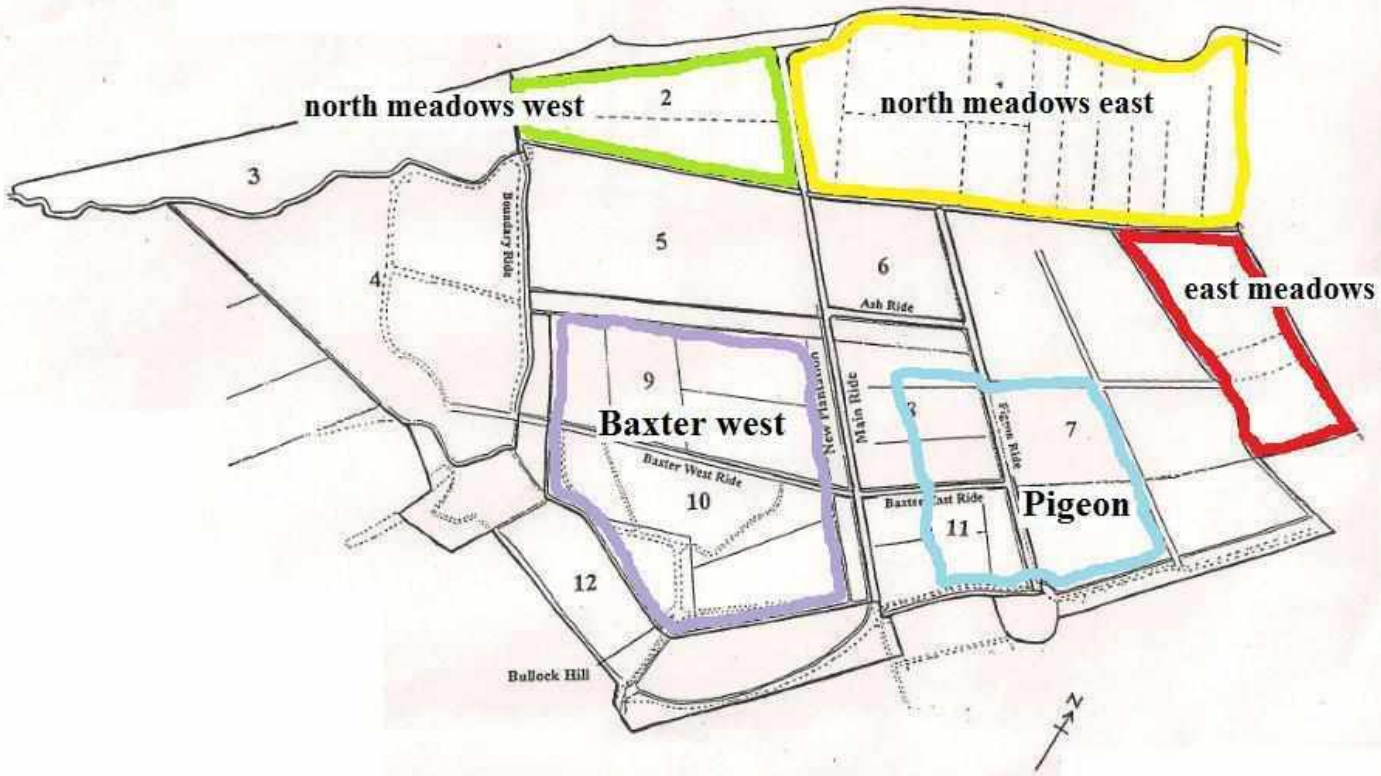
13 - East Meadows

Chippenham Fen - Management Plan 1996

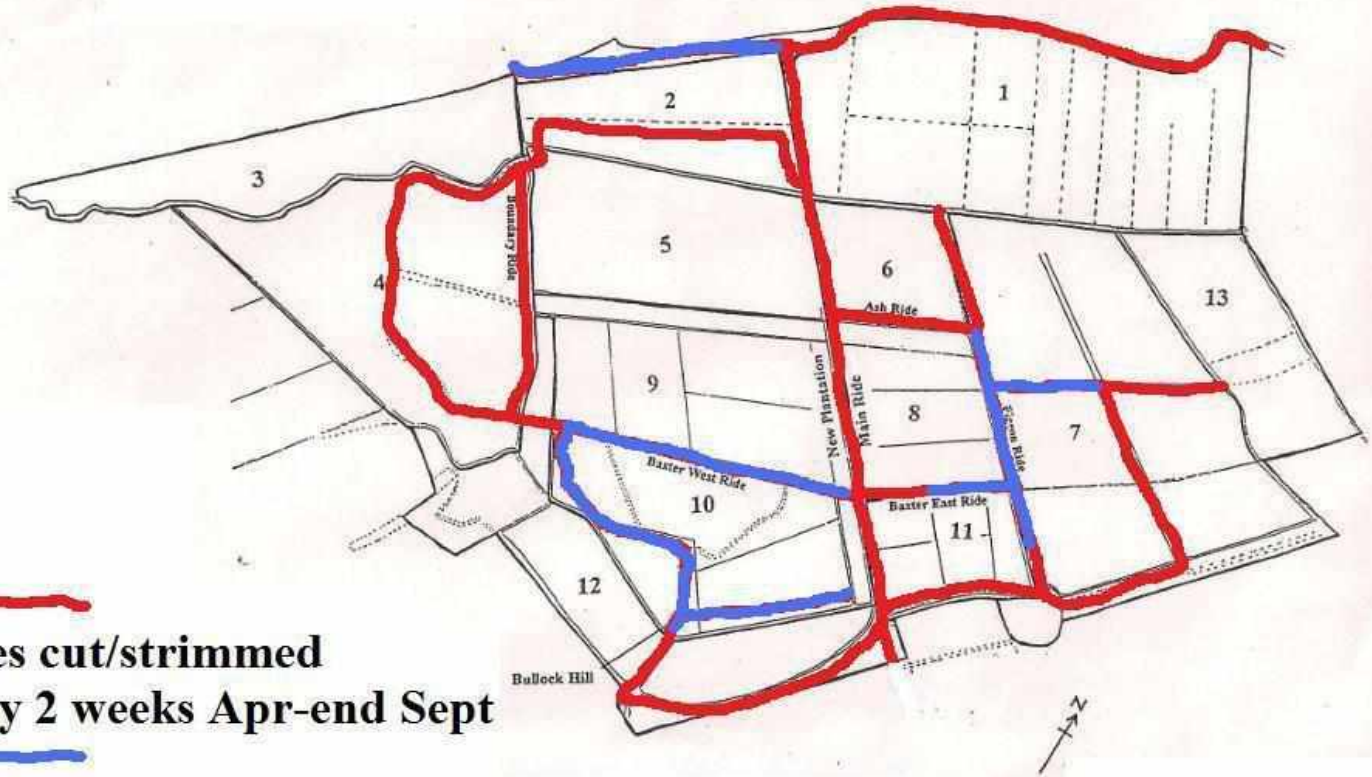
Figure 3 - Compartment Map

East Midlands Environmental Consultants
110 Swainson Dale, Nottingham, NG3 7DN

MAP 2 GRAZING AREAS

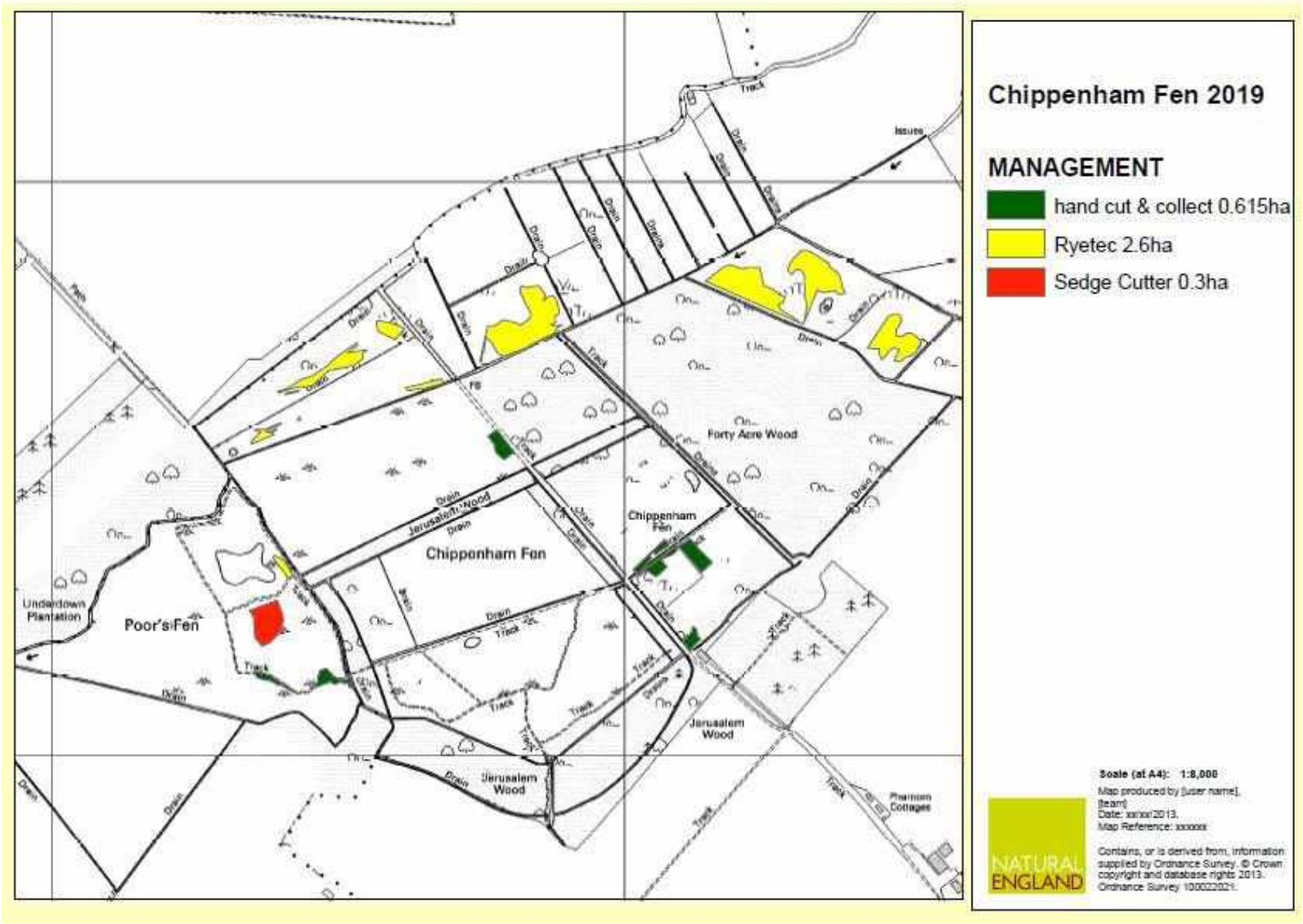


MAP 3 RIDE CUTTING



Rides cut/strimmed every 2 weeks Apr-end Sept

Rides cut/strimmed less frequently; a few times during season as necessary


Chippenham Fen 2019
MANAGEMENT
hand cut & collect 0.615ha
Ryetec 2.6ha
Sedge Cutter 0.3ha
Forty Acre Wood
Chippenham Fen
Jerusalem Wood
Poor's Fen
Underdown Plantation
Jerusalem Wood
Pharisee Cottages
Issues
Scale (at A4): 1:8,000
Map produced by [user name], [team]
Date: xx/xx/2013.
Map Reference: xxxxxx
NATURAL ENGLAND
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