Rutland Water Nature Reserve

Annual Wildlife Report 2022

love every drop
anglianwater

Leicestershire
& Rutland
Wildlife Trust

Introduction

The Rutland Water Nature Reserve Annual Wildlife Report 2022 summarises the survey and monitoring work that has taken place over the last year. The results of which feedback into the management of the Nature Reserve and provide evidence for the favourable condition of the SSSI. Following the restrictions brought on by Covid 19, we were delighted to be able to carry out a full suite of uninterupted surveys in 2022. Staff were supported by a team of dedicated volunteers who helped to undertake the survey work, totalling over 2,000 hours of recording in the field.

Record numbers of animals were observed during the year including over 124,000 wetand birds, over 14,000 individual moths, 572 species of beetle, 25 species of butterfly and 17 species of dragonfly. We also had the most Osprey nests occupied in a single year.

At the end of 2022 we saw the depature of Luke Nelson, Assistant Species and Recording Officer. In his two years working at Rutland Water, Luke was instrumental in the maintenance of the two CES bird ringing sites, the Sand Martin ringing and wider ringing studies on the Reserve over the last two years.

Acknowledgements

As we always say, we cannot do what we do at Rutland Water without the fantastic LRWT volunteers and dedicated staff.

We are indebted to the time, effort and skills of the many volunteers that help to collect and analyse data for the many surveys that are carried out at Rutland Water Nature Reserve.

Joe Davis (Nature Reserves Manager)

Images in the report were supplied by Tony Clarke, Tim Sexton, Jeff Davies, Linda Schlemmer, Alistair Lawrence, Luke Nelson, Clive Harding, Vaughn Matthews and Libby Smith

Wildlife Records can be sent to Tim Sexton: tsexton@lrwt.org.uk or by post to:

Leicestershire and Rutland Wildlife Trust,
The Volunteer Training Centre,
Meadow Way,
Egleton,
Oakham, LE15 8TL

Cover photo - Great White Egret © Tony Clarke

Contents...

Shoveler © Tony Clarke

Highlights of the Year

2022 in numbers

With the help of our dedicated survey and monitoring volunteers and members of staff we achieved so much in 2022 here are the highlights...

25 species of butterfly recorded

11 breeding pairs of Osprey rearing a total of 22 chicks

1,068 Sand Martin chicks ringed in the artificial nesting banks

5,598 birds processed by the ringing group of **51 species**

14,070 Moths of **468 species** caught, identified and then released

159 Bats recorded in bat boxes across the Reserve's woodlands

572 species of **beetle recorded** through seven survey days

2,030 Gadwall counted on one WeBS survey

75 Great White Egret and **142 Little Egret** counted during a roost survey

124,016 wetland birds counted through the monthly **WeBS counts**

52,666 Gulls counted in winter roost count

Executive Summary

Tim Sexton (Species and Recording Officer)

Rutland Water Nature Reserve is a Site of Special Scientific interest (SSSI), Special Protection Area (SPA) and a Ramsar Wetland of International Importance as it supports exceptional numbers and diversity of passage and wintering waterfowl. Counts of wintering wetland birds regularly exceed 20,000 individuals, including internationally important numbers of Gadwall (Anas strepera) and Shoveler (Anas clypeata) along with nationally important numbers of other duck species, grebes and swans. The diversity of waders using the site on passage is outstanding for an inland site, while the diversity and population of breeding waterfowl, waders and passerines is of increasing importance. More recently, wintering gull roosts have become an important (though not officially designated) feature of the complex with over 50,000 birds (predominantly Black-headed Gull) recorded in the last two winter counts.

The site is owned by Anglian Water (AW) and managed in close partnership with Leicestershire and Rutland Wildlife Trust (LRWT). The Nature Reserve consists of a mosaic of wetland habitats on the western end of the main reservoir and includes eight lagoons, islands, reedbed, marshland, wet grassland and over 20 smaller ponds. Woodlands (along with ancient woodland compartments), scrubland, pasture and species-rich grasslands support important assemblages of breeding birds and assemblages of invertebrates.

Legislative requirements for monitoring the condition of the RAMSAR, SPA and SSSI are met through the monthly Wetland Bird Surveys (WeBS), which have taken place at the site since 1975. The Reserve Management Plan also sets out an annual work programme of non-legislative species monitoring to provide feedback on habitat management which includes (but is not limited to); WeBS, Osprey Monitoring, Breeding Bird Surveys, Water Vole Surveys, Mink Surveys, Wildfowl Ringing, CES and other ringing studies, Breeding Seabird Census, Winter Bird Surveys, Tern Raft Monitoring, Sand Martin Nest Bank Recording, Invertebrate Surveys, Veteran Tree Surveys, and Grassland Monitoring.

From the results of the Wetland Bird Surveys, in the autumn/winter of 2021/2022 (the WeBS year runs from July to June), the threshold for International Importance for Shoveler was only just missed with 644 birds recorded in October (threshold is 650). This was the highest count in ten years and is well above the SPA baseline count of 450 individuals. The threshold for International Importance for Gadwall was far exceeded with 2030 birds recorded in July (threshold 1200) and was also the highest count in ten years. The threshold for National Importance, and therefore favourable condition of the SSSI, was exceeded on both counts. The overall sum of species maxima, a qualifying feature of the RAMSAR/SPA designation was also exceeded with a total of 27,312 (threshold for international importance 18,560, SPA baseline is 21,050).

It was the 26th year since the project to reintroduce Ospreys back in to England began at Rutland Water. The resident pair, Maya and 33/11 successfully reared three chicks. A further 19 chicks were reared from ten other nests in the surrounding landscape - making it the largest number of active nests in a single year since the project began.

After our most successful year ever in the Sand Martin Nesting Banks in 2021, the hot summer in 2022 took its toll on invertebrate numbers and subsequently the birds in the nesting bank, with only 1,087 chicks fledging compared to 1,648 in 2021. The third brood saw the greatest reduction year on year. A total of 417 nest records were submitted to the BTO as part of the Nest Records Scheme - and constitutes around 40% of the total nest records for this species in the whole of the UK

At the two Constant Effort Sites (CES) a total of 1,231 birds were processed (614 at Lagoon 3 and 617 at Field 16). The CES is the longest running systematic monitoring project, and has been running at Rutland Water since 1987. In all, 5,598 birds of 51 species were processed by staff and volunteers from the Rutland Water Ringing Group in 2022.

Over 14,000 moths of 468 species were recorded in the moth traps across three locations on the Reserve in 2022 with 21 new species being added to the Reserve's moth list. This brings the overall number of moth species recorded at Rutland Water to 748 (336 micro, 412 macro). Two new butterfly transects were established in 2022 and a total of 25 species were recorded. The most notable records being Purple Emperor (recorded on the Lax Hill Transect), Green Hairstreak (recorded outside Lyndon Centre) and a Black Hairstreak which was recorded just outside of the Reserve boundary.

A systematic survey for dragonflies and damselflies was established in 2022 to cover the smaller ponds. The survey recorded a total of 17 species and found the ponds in Cherry Wood to be the most diverse. Willow Emerald Damselfly continue to spread across the site and Hairy Dragonfly were also recorded in good number.

Finally, a baseline survey of beetles was undertaken throughout 2022 with seven survey visits recording a total of 572 species - including many scarce wetland species and 24 species not previously recorded in Leicester and Rutland.

A massive thank you to all the volunteers who have collectively committed over 2,000 hours of their time to record wildlife at Rutland Water Nature Reserve over the last year.

Wetland Bird Survey (WeBS)

Gadwall © Linda Schlemmer

This is the 48th year of the WeBS at Rutland Water. The WeBS is one of the most important wildlife surveys at Rutland Water and has taken place here since 1975. In that time, staff and volunteers have recorded over 5.5 million birds of 128 different species. The results of the WeBS counts provide us with a unique opportunity to look at long-term population trends as the site matures along with gaining an understanding of the responses of wintering and resident waterbirds to ever-changing environmental pressures.

The principal aims of the survey are to monitor the wintering waterbird population across the Reservoir and Nature Reserve, providing an important indicator of the health of the wetland and feed back to the RAMSAR/SPA designation.

Core counts typically coincide with the national survey (coordinated by the BTO) on Sundays, once a month, between October and March. Between April and September counts are carried out on the Tuesday following the national core count date.

During the survey period 2021/22, no counts were missed. However, occasionally poor weather conditions do not enable us to carry out the count on the set core count days. In December, the count was carried out on the Tuesday after the core date due to heavy fog. Likewise, in February, the count was conducted on the Tuesday after the core count, due to dangerous winds - which also make for difficult counting conditions.

Dates of Counts in 2021/22
26th July 2021, 24th August 2021, 12th September 2021, 10th October 2021, 7th November 2021, 21st December 2021, 23rd January 2022, 22nd February 2022, 20th March 2022, 19th April 2022, 17th May 2022, 21st June 2022.

The reporting period for WeBS runs between July 2021 and June 2022 to coincide with the BTO's reporting on the national survey. This is to ensure that one full winter is included in the reporting period. During that time a total of 124,016 birds were recorded of 66 species. The increase in the number of birds from the 2020/2021 (109,293 birds) period is predominantly down to a survey being missed in January of that year as a result of Covid measures.

The sum of the species maxima (one of the qualifying features of the designation) for 2021/2022 was 27,312 (note this figure does not include gulls due to incomplete coverage). This figure is well above the baseline peak count for the SPA (21,050) and above the maxima count for 2020/21 (23,613). 25 Year trends for the sum of species maxima are shown in figure 1.1.

Other qualifying features of the SPA include internationally important populations of both Shoveler and Gadwall. In 2021/22 Gadwall exceed the threshold for international importance (set at 1,200) with a maxima count of 2,030 for the period. Based on a 5yr average (15/16 to 19/20) Rutland Water is currently the number one site in the UK for this species.

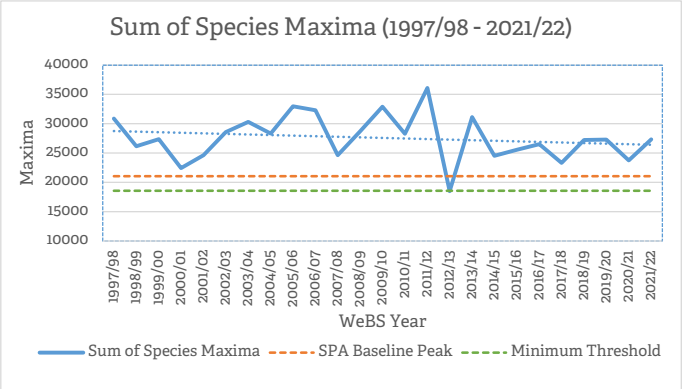


Figure 1.1 Sum of Species Maxima 1997/98 - 2021/22

For Shoveler, the species maxima for 2021/22 fell just short of the 650 threshold for international importance, with 644 recorded in October. However, the count was well above the baseline peak count for the Reserve and the minimum threshold for favourable status. The threshold for international importance for Shoveler has recently been raised from 450 to 650. Population trends for species maxima counts in 2021/22 against the 25 year mean are shown in table 1.1. The figures from Rutland Water are compared to the most recently available long-term data for the UK (1995/96 - 2020/21). The population trends for all qualifying features of the SPA and SSSI designations are shown in figure 1.2. Graphs for Common Pochard are not shown as they no longer meet the minimum threshold for importance. This species has declined in number across western Europe over the last two decades, suggested to be the result of increasing predation on their breeding grounds.

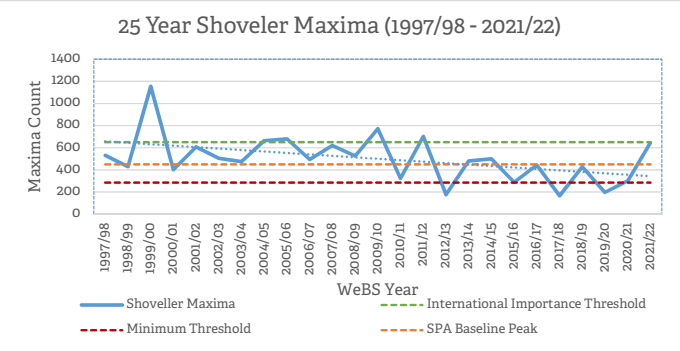
Highlights of the year include: the largest count of Great White Egret reported through the WeBS (for the second year running) - a total of 39, the largest count of Teal in 25 years (2128), the largest count of Pintail since 2005 (288), the largest count of Shoveler for 10 years (644), the sixth largest count of Gadwall (2030) since records began and the tenth largest count of Great-crested Grebe (878) since records began. Species totals and maxima counts for all species recorded in 2021/22 are shown in table 1.2.

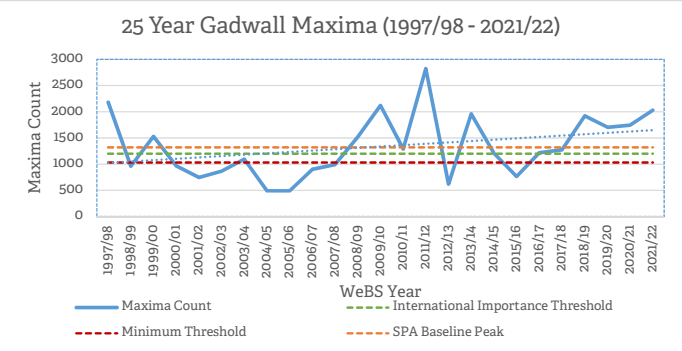
Further analysis of historic data was carried out in 2021/22 enabling us to show 25 year trends for the site as a whole on a rolling basis. Work is ongoing to create a simple method for analysing data within each recording location in a similar way.

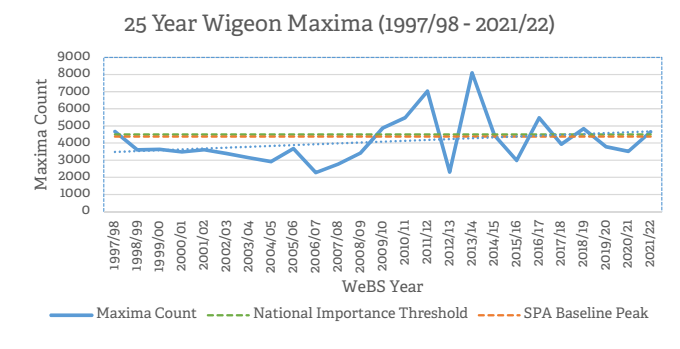
Common Pochard. Formerly a common species in the winter months at Rutland Water but has declined over much of Europe in recent years. © Tony Clarke

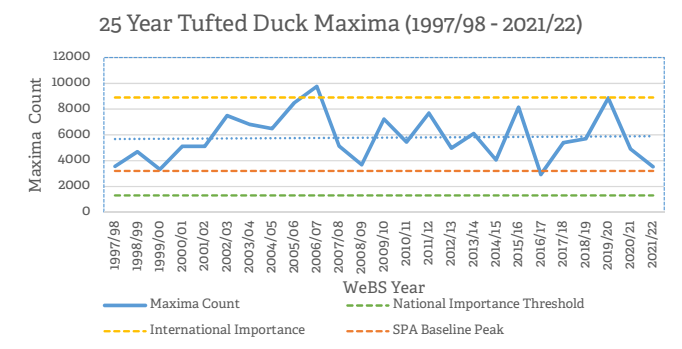
Species	2021/2022 Maxima vs 25 Year Mean 1996/1997 – 2021/2022	UK 25 Year Population Trend 1995/1996 – 2020/2021	Species	2021/2022 Maxima vs 25 Year Mean 1996/1997 – 2021/2022	UK 25 Year Population Trend 1995/1996 – 2020/2021
Canada Goose	▲4%	▲72%	Tufted Duck	▼37%	▼11%
Greylag Goose	▲57%	▲210%	Goldeneye	▼15%	▼55%
Mute Swan	▼10%	▲16%	Goosander	▲11%	▼25%
Egyptian Goose	▲15%	▲658%	Little Grebe	▲23%	▲42%
Shelduck	▼63%	▼23%	Great Crested Grebe	▲39%	▼17%
Shoveler	▲33%	▲53%	Little Egret	▲70%	▲1214%
Gadwall	▲62%	▲73%	Great White Egret	▲617%	-
Wigeon	▲20%	▼11%	Cormorant	▲88%	▲58%
Mallard	- 0%	▼37%	Coot	▼16%	▼25%
Pintail	▲91%	▼28%	Lapwing	▲21%	▼47%
Teal	▲67%	▲5%	Golden Plover	▼15%	▼14%
Pochard	▼73%	▼73%			

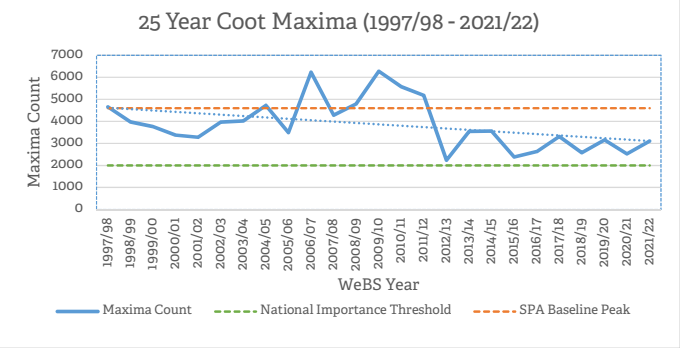
Table 1.1 Population trends for species maxima in 2021/2022 against 25 year mean. Rutland Water compared to the most recently available UK population data (between 1995/96 and 2020/2021). UK data taken from BTO, Waterbirds in the UK 2021/2022

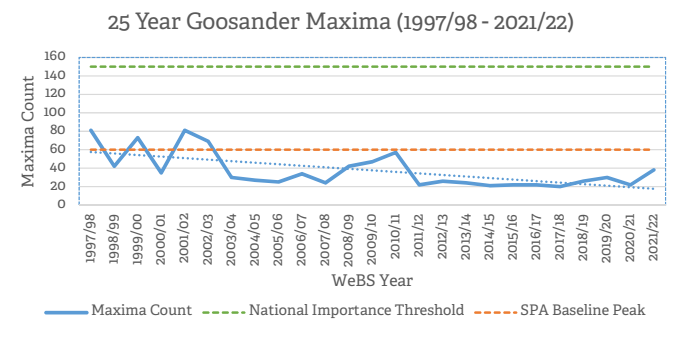


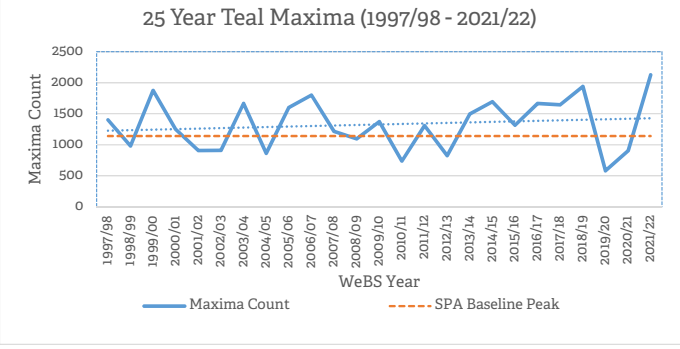


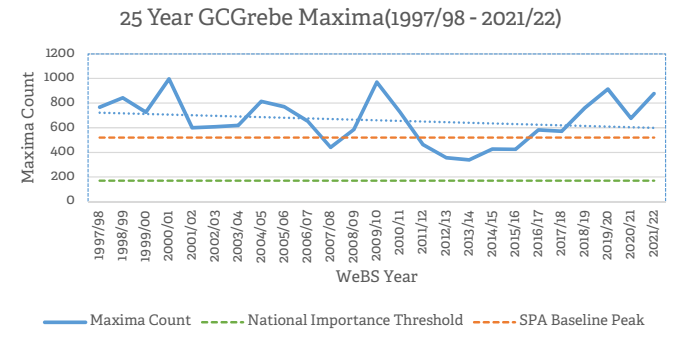


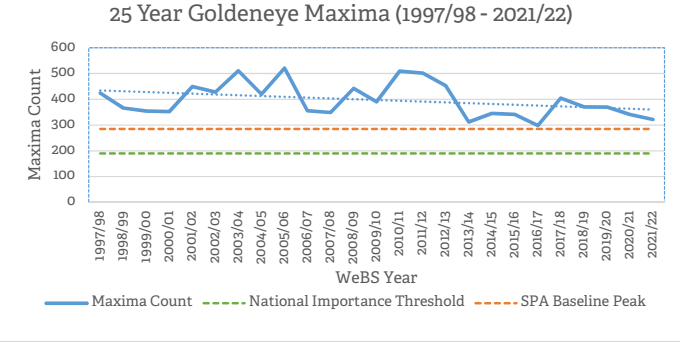












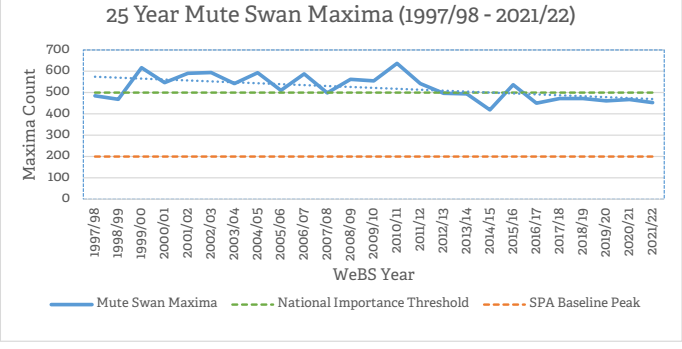


Figure 1.2 Species maxima trends for qualifying features of the SPA and SSSI 1997/98 - 2021/22. SPA Baseline is the peak count when the designation was set. Minimum threshold sets the monitoring target for determining favourable condition of the SSSI under Common Standards monitoring (CSM) protocols

Species Total and Maxima 2021/22													
Species/Month	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	March	April	May	June	Maxima
Canada Goose	1130	852	646	280	163	841	490	215	122	69	93	448	**1130**
Barnacle Goose	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Greylag Goose	1009	925	713	572	317	769	245	427	219	194	300	866	**1009**
Pink-footed Goose	0	0	0	0	0	0	0	9	0	0	0	0	**9**
White-fronted Goose (albifrons)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Hybrid Goose	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Mute Swan	415	389	308	386	432	453	300	212	146	184	215	272	**453**
Whooper Swan	0	0	0	0	0	36	0	0	0	0	0	0	**36**
Egyptian Goose	63	90	47	58	50	43	25	8	23	16	19	25	**90**
Shelduck	4	0	0	6	3	14	19	22	21	15	18	4	**22**
Ruddy Shelduck	0	0	0	0	1	0	0	0	0	0	0	0	**1**
Mandarin Duck	11	6	2	0	0	0	0	2	2	0	3	2	**11**
Shoveler	3	102	247	644	358	119	153	134	53	16	8	24	**644**
Gadwall	2030	1112	1131	1128	1285	713	419	255	125	159	207	1077	**2030**
Wigeon	12	17	460	3478	4661	3934	3197	1312	699	8	2	1	**4661**
Mallard	710	1119	895	1232	989	787	551	330	252	279	322	317	**1232**
Pintail	0	2	44	190	288	113	120	29	12	0	3	0	**288**
Teal	31	353	619	2128	1836	1121	1469	636	236	120	0	6	**2128**
Red-crested Pochard	0	0	0	0	6	2	0	0	0	0	0	0	**6**
Pochard	10	81	38	36	17	69	66	55	30	23	30	13	**81**
Tufted Duck	3069	3269	3528	2708	1828	973	795	809	1151	789	187	419	**3528**
Scaup	0	0	0	0	1	8	4	2	0	0	0	0	**8**
Goldeneye	0	0	0	0	56	235	322	223	208	0	0	0	**322**
Smew	0	0	0	0	0	1	6	10	2	0	0	0	**10**
Goosander	0	0	0	3	11	38	8	5	1	0	0	0	**38**
Great Northern Diver	0	0	0	0	0	3	2	3	0	1	0	0	**3**
Little Grebe	28	103	142	132	135	125	104	44	4	4	0	8	**142**
Great Crested Grebe	257	581	632	878	293	563	214	83	136	170	134	161	**878**
Slavonian Grebe	0	0	0	0	0	1	0	1	0	0	0	0	**1**
Black-necked Grebe	0	0	0	0	0	0	0	0	3	0	0	0	**3**
Grey Heron	14	12	25	32	23	21	13	5	11	16	1	10	**32**
Great White Egret	7	11	16	39	29	12	6	6	1	0	0	1	**39**
Little Egret	48	60	59	65	38	3	8	1	1	6	9	45	**65**
Cormorant	266	844	986	1057	334	316	251	150	206	160	195	47	**1057**
Water Rail	0	4	5	5	2	6	4	1	18	0	14	14	**18**
Moorhen	50	73	68	124	93	108	119	33	22	18	21	20	**124**
Coot	991	1277	1793	3105	2061	1776	2607	671	261	161	134	414	**3105**
Oystercatcher	19	2	0	0	2	1	2	30	27	19	17	17	**30**
Avocet	7	0	0	0	0	0	0	0	8	13	23	23	**23**
Lapwing	392	408	237	524	385	1964	2897	609	49	33	37	66	**2897**
Golden Plover	0	0	0	0	1	850	531	170	0	0	0	0	**850**
American Golden Plover	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Ringed Plover	0	5	5	3	0	0	0	0	0	0	32	2	**32**
Little Ringed Plover	0	4	0	0	0	0	0	0	1	4	8	7	**8**
Whimbrel	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Curlew	5	8	3	3	0	5	9	10	4	0	0	0	**10**
Black-tailed Godwit	15	0	8	3	2	2	1	0	0	0	0	0	**15**
Dunlin	0	3	0	0	26	56	20	23	3	1	32	0	**56**
Turnstone	0	0	1	0	0	0	1	2	1	0	0	0	**2**
Ruff	0	1	3	0	0	0	0	0	0	0	0	0	**3**
Snipe	0	0	19	4	5	9	7	6	2	2	0	0	**19**
Common Sandpiper	5	1	2	1	0	0	0	0	0	0	2	0	**5**
Green Sandpiper	1	9	15	1	3	6	2	0	2	0	0	1	**15**
Spotted Redshank	0	1	0	0	0	0	0	0	0	0	0	0	**1**
Redshank	0	0	0	0	10	16	10	13	18	4	5	0	**18**
Greenshank	0	5	4	0	0	0	0	0	0	0	0	0	**5**
Kingfisher	0	1	2	0	0	3	0	2	0	0	1	1	**3**
Common Tern	115	61	2	0	0	0	0	0	0	12	66	67	**115**
Black Tern	1	1	0	0	0	0	0	0	0	0	0	0	**1**
Black-headed Gull	249	6	903	133	18	55	157	221	61	700	746	104	**903**
Common Gull	1	0	3	0	0	0	5	17	0	0	2	0	**17**
Caspian Gull	0	0	0	0	0	0	1	1	0	0	0	0	**1**
Great Black-backed Gull	19	0	2	1	0	3	3	1	0	3	6	2	**19**
Herring Gull	0	0	0	0	0	0	0	1	0	0	0	0	**1**
Yellow-legged Gull	5	0	1	0	4	0	0	0	0	0	1	0	**5**
Lesser Black-backed Gull	4	0	1	2	3	5	0	0	0	3	11	4	**11**
												Total	**27312**

Table 1.2 Species totals and maxima for all species 2021/22. Does not include gulls due to incomplete coverage through the WeBS counts

Rutland Ospreys

2022 proved to be a successful year for Ospreys in the Rutland Water area, with a total of **11 breeding pairs rearing 22 chicks**. The is the largest number of active nests recorded in a single year, surpassing ten breeding pairs in 2019 and 2020

Juvenile 1H3. One of the three females to fledge from the Manton Bay nest this summer. Photographed at the Senegal/ Gambia border.
© Clive Harding

Manton Bay Ospreys

George Smith (Osprey Information Officer)

On the 15th of March 2022, Maya, the established breeding female, returned to the Manton Bay nest site for her thirteenth year running and was the first monitored Osprey to return to the UK in the season. She was joined by 33(11), her mate, six days later on the 21st of March. 2022 marking the eighth year that they have been paired up.

Three eggs were laid by Maya on the 31st March, 3rd April, 6th April. The first two eggs hatched on the 9th and 10th May. Soon after, there was drama at the nest when during a period of cold and wet weather, a live fish brought back by 33(11) threw itself around the nest landing on one of the chicks and the remaining egg. The newly hatched chick survived for several hours, exposed to the elements as it was dislodged from the nest cup. Later in the afternoon the sun came out and Maya was observed feeding both chicks. We were still unsure whether the unhatched egg was damaged in the ordeal. In spite of concerns the final egg hatched on the 12th May and all three chicks looked healthy.

On the 20th of June, six weeks after the first egg hatched, the three juveniles were ringed and sexed (as shown in table 2.1). All of the chicks turned out to be female and were fitted with BTO metal rings and coloured Darvic Rings numbered 1H1, 1H2, and 1H3.

Two weeks later, on the 2nd of July, 1H1 fledged from the nest and began exploring the surrounding area. On the following day, 1H3 took a very brief maiden flight before staying at the nest for the rest of the day, and started taking more confident exploratory flights on the 4th of July when 1H2 also made her maiden flight. This was the first time the nest could be seen without an Osprey since the first egg was laid in March.

1H2 was the first of the juveniles to leave on migration (8th August) and was seen at Frodsham Marsh on the 27th of August. 1H3 left on migration four days later, on the 12th of August, and was identified on the River Allehein on the 15th of February 2023 which is excellent news as it is proof of a successful initial migration to prime wintering Osprey habitat.

1H1 remained for the nest for an additional 17 days after both her siblings had departed, leaving on migration on the 29th of August at 111 days of age. She was subsequently seen at the Sado estuary near Lisbon in Portugal on the 9th of September and was photographed by Carlos Miguel (see below).

As she had done in previous years, Maya waited for all of her offspring to leave before she eventually departed on the 1st of September. 33(11) followed soon after on the 3rd of September.

A massive thank you to our Osprey Volunteers who collectively spent over 2,000 hours monitoring the nest from Waderscrape Hide. Along with gathering information about feeding visits, species of fish brought back to the nest, key moments in the nesting period, they also protect the nest from possible human intrusion and provide a wealth of information to our visitors in the hide.

BTO Ring	Darvic Ring	Weight	Wing	Sex
1380174	1H1	1830g	366	Female
1380175	1H2	1830g	358	Female
1380176	1H3	1770g	332	Female

Table 2.1 Manton Bay Osprey chick ringing information

1H1 at the Sado estuary in Portugal on 9th September 2022 © Carlos Miguel

The Site N chicks in the nest after ringing © Tim Mackrill

Off-site Osprey Nests

Off-site Osprey Report

Dr Tim Mackrill

2022 proved to be a successful year for Ospreys in the Rutland Water area, with a total of 11 breeding pairs rearing 22 chicks. The is the largest number of active nests recorded in a single year, surpassing ten breeding pairs in 2019 and 2020. It was particularly pleasing that three new females joined the population, two of which were unringed, and one with a metal-ring on its right leg, indicating it is Scottish. Details of the breeding activity at each nest are summarised in this report, as well as details of other returning birds in Rutland and elsewhere.

Site B
Male 30(10) was first seen on 21st March, when he was present at the neighbouring Site C nest, with the resident, 25(10). Four days later, on the evening of 25th March, 30(10) was present with his regular mate, HJ8, at Site B. He subsequently returned to the nest with a Rainbow Trout.

Incubation was first recorded on 11th April and proceeded without incident.

Hatching was confirmed on 19th May when HJ8 was observed offering fish down into the nest for the first time. It was possible to confirm that there were two healthy chicks in the nest on 7th June.

The two Site B chicks were ringed on 25th June, and both were thought to be female. The ringing details are shown in table 2.2.

BTO Ring	Darvic Ring	Weight	Wing	Sex
1380172	1H4	1590g	375	Female
1380173	1H5	1650g	358	Female

Table 2.2 Site B Osprey chick ringing information

Both chicks fledged successfully and were flying well on 19th July when 1H4 intruded at the neighbouring Site C nest and was chased away by the breeding female. The two juveniles and HJ8 were present at the nest on 5th August. HJ8 and 1H5 both migrated before 26th August. That day 1H4 and 30(10) were both still present, with the juvenile food-begging loudly on the nest. However, by 3rd September all of the family had departed.

Site C
The Site C female, 25(10) was first present on 21st March when she was at the nest with the Site B male 30(10). At least one successful copulation was observed. Four days later the resident male, 11(10) was back at the nest with his long-term mate. Incubation was first observed on 11th April.

Hatching was confirmed on 19th May when both adults were standing on the edge of the nest. The male subsequently offered a piece of fish down into the nest cup and then the female made a more concerted effort to feed the newly hatched chick/s. Only a small amount of fish was taken indicating that any young were very small.

Three chicks were visible in the nest for the first time on 10th June. All three chicks were ringed on 27th June and the ringing details are shown in table 2.3.

BTO Ring	Darvic Ring	Weight	Wing	Sex
1380177	1H9	1540g	349	Male
1380178	2H1	1480g	355	Male
1380179	2H2	1730g	320	Female

Table 2.3 Site C Osprey chick ringing information

All three chicks fledged successful and all were present in the vicinity of the nest and flying strongly on 19th July. 2H2 and 11(10) were still present at the nest on 26th August, but it appeared that 25(10) and the two other juveniles had migrated.

1H9 was subsequently seen at Christchurch Harbour in Dorset on 29th August, having successfully caught a Grey Mullet. It was still present there on 1st September.

All of the family had departed from the nest by 3rd September.

The Site C chicks in the nest after ringing on the 27th June © Tim Mackrill

Site J
1K(13) returned to the Site K nest on 23rd March. A second bird was present with him from 17th April and was identified as 2AF(16) on 26th April. That day she landed on the nest and 1K(13) displayed high above her for 20 minutes before landing beside her. 2AF had previously bred at Site L from 2019-21 but her regular mate, 51(11), did not return this spring.

Incubation was first recorded on 12th May. The first signs of hatching were apparent on 17th June when 2AF was noticeably restless on the nest, repeatedly standing up and looking down. By 14th July two chicks were clearly visible in the nest. The two chicks were ringed on 30th July. The ringing details are shown in table 2.4.

Both chicks fledged successfully and were flying confidently in the vicinity of the nest on 12th August. All of the family had departed by mid-September.

BTO Ring	Darvic Ring	Weight	Wing	Sex
1380189	3H1	1460g	347	Male
1380190	3H2	1400g	368	Male

Table 2.4 Site J Osprey chick ringing information

Site K
The established breeding pair at Site K, female 00(09) and male 06(09), were both present at Site K on 1st April and incubation was underway by 15th April.

Hatching was confirmed on 23rd May, when 00(09) was observed offering fish into the nest for the first time. A single chick was visible in the nest for the first time on 16th June and it was ringed on 27th June. The ringing details are shown in table 2.5. The single chick was the heaviest individual ever recorded at ringing.

1H0 was helicoptering on 14th July and flying by 20th July. On 29th July 1H0 was perched on a dead tree near the nest. Both adult birds were present at the nest on 12th August, but there was no sign of 1H0. All of the family had departed by the end of the month.

BTO Ring	Darvic Ring	Weight	Wing	Sex
1380180	1H0	2130g	334	Female

Table 2.5 Site K Osprey chick ringing information

Site L
The regular breeding male 51(11) did not return to Site L this year. His mate, 2AF(16) was seen for the first time on 14th April when she was present at the Site R nest. She subsequently moved to Site J and raised two young there (see above).

In the absence of 51(11), 2AM(17) was nest building at the Site L nest on 4th April, and remained there for much of the month. He was also photographed at Horn Mill Trout Farm on 26th April.

The Site K chick in the nest after ringing © Tim Mackrill

2AM was unsuccessful in attracting a mate and was seen at Blithfield Reservoir - a site he visited on a number of occasions in previous years - on 18th April, and then on a regular basis for the rest of the summer. He was last seen there on 14th September.

Site N

Female 5N(04), the oldest and most successful breeding Osprey in the local population, returned to Site N on 21st March. She was joined by her regular mate 6K(14) on 1st April. Incubation was first recorded on 15th April.

The first signs of hatching at Site N were evident on 20th May when 5N was seen to pick a piece of egg shell out of the nest. Three chicks were subsequently seen for the first time on 7th June. The three chicks were ringed on 27th June, and the ringing details are shown in table 2.6.

All three chicks fledged successfully and all three were flying well and perching in the vicinity of the nest on 20th July. On 5th August two juveniles, 1H7 and 1H8 were perched in an Ash tree with 5N(04) half a mile from the nest. 1H9 left relatively early and was photographed at Ploegsteert on the France-Belgium border on 15th August. 6K(14) was still present on 26th August, but by 1st September all of the family had departed on migration.

BTO Ring	Darvic Ring	Weight	Wing	Sex
138017	1H6	1750g	317	Female
1380175	1H7	1500g	351	Male
1380176	1H8	1890g	375	Female

Table 2.6 Site N Osprey chick ringing information

Site O

The regular breeding male 8F(12) was present at the nest on 21st March, and was joined by the metal-ringed Scottish female who has bred at the site since 2009 on 25th March. They were together again on 1st April and a number of successful copulations were recorded. Incubation was first logged on 15th April, with the female sitting, and the male holding a fish on one of the artificial T perches close to the nest.

On 21st May an unringed male was present at the nest with the female, and there was no sign of 8F. This unringed male had been first seen at Eyebrook Reservoir on 14th May and there was considerable Osprey activity in the area on 20th May. It seems possible that 8F may have been killed while attempting to drive the intruder away; perhaps flying into overhead powerlines.

There were no subsequent sightings of 8F and the unringed male took over the nest.

Despite the change of male, two chicks, fathered by 8F, were visible in the nest for the first time on 6th June. The unringed male provisioned for the family from 21st May onwards, and the two chicks developed normally. They were ringed on 5th July and the ringing details are shown in table 2.7.

The two chicks fledged successfully and both were making short flights in the vicinity of the nest on 20th July.

The unringed male remained with the family for the whole of the post-fledging period and continued to provision the chicks. He was the last of the birds to depart, and was last seen on the evening of 1st September when he returned to the nest with a trout.

BTO Ring	Darvic Ring	Weight	Wing	Sex
1380183	2H5	1790g	380	Female
1380184	2H6	1480g	360	Male

Table 2.7 Site O Osprey chick ringing information

Site O chicks with a trout © Tim Mackrill

Site R

T4(16) returned to the Site R nest on 4th April and was joined on 21st April by the unringed female that had been present for much of summer 2021.

On 3rd May T4(16) was observed sitting low in the nest for the first time, and incubation was underway by 10th May. Hatching was confirmed on 21st June, when the female was observed offering food into the nest cup, with T4(16) watching on. The chick was ringed on 29th July and the ringing details are shown in table 2.8.

2H9 fledged successfully and was perched in a dead tree near the nest on 12th August. The unringed female was last seen on 25th August, but 2H9 and T4(16) were perched together near the nest on 3rd September. By 7th September only T4(16) remained at the nest and he departed either later that day or on 8th.

BTO Ring	Darvic Ring	Weight	Wing	Sex
1380187	2H9	1680g	365	Female

Table 2.8 Site R Osprey chick ringing information

Site S

T3(16) returned to the Site S nest on 22nd March, and was joined by his mate 30(05) two days later, on 24th March. Incubation began on 11th April.

The first signs of hatching were evident on 19th May and next day the female was observed offering food into the nest cup for the first time.

Two chicks were visible in the nest by mid-June and they were ringed on 28th June. The ringing details are shown in in table 2.9. Both chicks fledged successfully and were flying around the nest area on 18th July.

30(05) was last seen at the nest on 13th August but the two juveniles and T3(16) were both still present on 23rd August. T3(16) and one of the juveniles were still present on 5th September, but there were no subsequent sightings of either bird, indicating they had departed on migration. However, an intruding adult bird, possibly 059(19), was present in the vicinity of the nest between 7th and 10th September.

BTO Ring	Darvic Ring	Weight	Wing	Sex
1380181	2H3	1650g	350	Female
1380182	2H4	1740	322	Female

Table 2.9 Site S Osprey chick ringing information

Site T

Satellite-tagged male 4K(13) arrived back at the nest on private land on the Belvoir estate on 12th April and was joined by an unringed female that had been present during summer 2021 on 15th April. The first successful copulations were observed soon afterwards. Incubation began on 26th April.

Hatching was confirmed on 3rd June when the female was seen offering food into the nest cup for the first time. Two chicks were visible in the nest on 16th June and both chicks continued to develop well.

The chicks were ringed on 15th July. The ringing details are shown in table 2.10. 2H8 fledged first on 27th July, followed by 2H7 the next day. The adult female departed relatively early, on 5th August, but 4K(13) continued to provision the young throughout August. 2H7 departed on 25th August, but 2H8 remained until 9th September and 4K(13) departed the same day.

4K(13) satellite transmitter showed that he arrived at his regular wintering site at the Pongo estuary in Guinea on 4th October. He flew 5280km in 16 travelling days with a ten-day stop-over at Baie des Veys in northern France, a site he visits every autumn.

BTO Ring	Darvic Ring	Weight	Wing	Sex
1380185	2H7	1780g	352	Female
1380186	2H8	1460g	341	Male

Table 2.10 Site T Osprey chick ringing information

Site W

T7(16) returned to the nest that he built in 2021, on 30th March. He was joined by an unringed female on 17th April. She was still present on 19th, but lingered for only a few days.

A female with a metal ring on her right leg - indicating she is Scottish - arrived at the nest on 3rd May. This female had been first seen in Rutland in early July 2021.

Incubation was first recorded on 16th May. Hatching was confirmed on 23rd June when the female was observed offering fish into the nest cup for the first time, as T7 watched on. A single chick was visible in the nest on 15th July.

The chick was ringed on 30th July and the ringing details are shown in table 2.11. 2H0 fledged successfully on 17th August and was seen to be flying strongly on 21st August.

All of the family were still present on 27th August, but 2H0 was beginning to make longer flights away from the nest.

The female was last seen at the nest on 9th September, while T7(16) and 2H0 remained until 24th September. They were the last of the local birds to depart.

BTO Ring	Darvic Ring	Weight	Wing	Sex
1380188	2H0	1650	321	Female

Table 2.11 Site W Osprey chick ringing information

Other Birds Present in the Rutland Area

Male 3AB(17) was present on the platform in Burley Fish Ponds on 10th May. This bird has previously moved between Rutland and Fishlake Meadows in Hampshire, and a blue-ringed male seen at Fishlake Meadows later in May could well have been this individual.

3AB(17) was photographed at Cropston Reservoir in Leicestershire on 27th July and 11th August, and at Hollowell Reservoir in Northamptonshire on 27th July; typical wanderings for an unpaired male.

3AY(19), a male that fledged from the Site O nest in 2019, was photographed at Frank's Pit, near Helpston, Cambridgeshire on 20th August. Reports suggested the bird had been in the area for at least a week. This was the first confirmed sighting of this individual since his first migration in 2019.

055(19), a 2019 male from the Manton Bay nest, was observed fishing at Horn Mill Trout Farm on 16th April. There were no other confirmed sightings until 26th August when he was photographed on Lagoon 4 at Rutland Water.

059(19), a male that fledged from Site R in 2019, was observed fishing at Horn Mill Trout from on 7th May and was a frequent visitor thereafter. He was also photographed at Hollowell Reservoir in Northamptonshire on 27th July and at Cropston Reservoir in Leicestershire on 7th August in the company of an unringed female.

An unidentified adult male Osprey in the vicinity of the Site S nest between 7th-10th September may have been 059(19), based on missing secondary feathers.

093(20), a male that fledged from the Site L nest in 2020, was observed intruding at the Manton Bay nest on 28th May – the first sighting of this individual since his first migration.

Rutland Birds Recorded Elsewhere

3J(13), a female that fledged from the Manton Bay nest in 2013, reared three chicks at the Cors Dyfi nest in mid-Wales. She has now reared ten chicks since first breeding at the site in 2018.

5F(12), a female that fledged from Site K in 2012, reared three chicks at the Llyn Cywedog nest in mid-Wales. She has now reared seven chicks at the site since first breeding in 2020.

CJ7(15), a female that fledged from Site K in 2015, bred successfully at Poole Harbour in Dorset for the first time, rearing two chicks with translocated male, 022(19). One of the young was killed by a Goshawk after fledging but the other, 5H1, departed on migration in late August.

S2(15), a male that fledged from the Manton Bay nest in 2015, reared three chicks at a nest at the Biesbosch in the Netherlands with a German-ringed female. The two birds have now reared a total of eight chicks since first breeding in 2020.

3AF(17), a female that fledged from the Site O nest in 2017 reared three chicks at a nest in the Scottish Borders with Blue 39, a male from Kielder Forest. They are the first known English pair to breed in Scotland.

3AX(18), a female that fledged from the Site B nest in 2018, bred for a second year in north-west England rearing three chicks with a Cumbrian male, 0A. They have now reared five chicks.

078(20), a female that fledged from the Site K nest in 2020, intruded at nest 7 in Kielder Forest, Northumberland on 10th July.

Avocet chicks on Lagoon 4 © Malcolm Heaven

Breeding Wader Survey

Tim Sexton

The aim of this survey is to monitor the breeding successes and failures of wading birds (waders) on the lagoons at Rutland Water Nature Reserve (RWNR). Breeding wader surveys have previously been carried out at the reserve since 2018. A 2020 survey was not possible due to the coronavirus pandemic. Surveying began in 2022 in the week commencing 14th March 2022. A group of nine volunteers were responsible for monitoring and recording the activities of any wading birds found on their allocated lagoon.

Wader surveyors were asked to survey their allocated lagoon ideally for 2-4 hours at least once per week, dependent upon lagoon size and bird activity. The method employed was a fixed-point observation study. Observation points were usually hides; the only exception was on Lagoon 7 where there are no hides. In this case the surveyor took position in a temporary camouflaged canvas hide, erected on the bank of the lagoon, close to the sluice gate [see appendix 1 for photo].

The surveyors were asked to look for specific behaviour associated with breeding waders and enter any findings onto both a recording form and a map of the lagoon [see appendices 2 & 3]. Numbered concrete blocks are present on the lagoon islands; this enabled surveyors to note specifically where within the lagoon any breeding behaviour occurred and later in the season, to record exactly where chicks were present.

The behaviours that the surveyors were asked to observe and record were:

Courtship
Behaviours such as chasing, courtship flights and territorial displays. Due to the mobility of birds engaging in courtship, it often proves difficult to accurately assign an island number to any birds behaving in this way.

Copulation
Any records of active copulation are recorded. It is normally possible to assign an island number to this behaviour.

Nest scraping
Surveyors record any evidence of birds scraping out or building a nest.

Incubation
Any observations of birds sat motionless on an island for long periods is a strong indicator of incubation. Roosting waders normally stand upright on one leg; a bird sat on the ground is likely to be incubating. Any birds suspected to be incubating were regularly observed to see if they were relieved by their mate which would act as confirmation of incubation.

Brooding
Once eggs have hatched, adult birds will routinely shelter their young chicks underneath their bodies.

Signs of this behaviour were recorded if observed.

Predation events
An opportunity for surveyors to note any aerial or ground predators present during their monitoring period. Even if there was no actual predation of a nest, the presence of predators was still observed and recorded and any effects this may have had on the breeding waders present.

Notes
Surveyors were encouraged to make further notes of anything they felt pertinent to the survey including other disturbance and non-breeding waders present during the recording period.

The position of the nest was recorded as accurately as possible on the surveyors' lagoon maps with a cross and the BTO species code for the bird. The type of behaviour observed was recorded as such: i = incubation, b = brooding or chicks was written with the number preceding the BTO code to denote the number of chicks for that species. A new map was used for each survey visit.

Full surveys were carried out and breeding success data was collected for Lagoons 4 - 8 at Rutland Water in 2022. Regular visits were also made to Lagoons 1-3 and the Wet Meadow (adjacent to Lagoon 1) to identify any nests and breeding success. As there are less nesting opportunities on these lagoons, the full survey methodology is not followed and observations are made by staff. Outside of Lagoons 4-8, there was only one pair of Oystercatcher reported nesting on Lagoon 1 and one on Lagoon 3. The Lagoon 3 pair successfully reared two chicks. Two young avocet chicks were recorded later in the season on Lagoon 3, although these originally hatched from one of the nests on Lagoon 4. A summary of pairs nesting, breeding attempts and fledged chicks across the Reserve in 2021 is shown in table 3.1 and for 2022 in table 3.2.

Species	Pairs	Breeding attempts	Fledged chicks
Avocet	10	10	30
Lapwing	10	27	19
Little Ringed Plover	5	5	2
Oystercatcher	16	17	12
Redshank	3	3	7
Totals	**44**	**62**	**70**

Table 3.1 Total number of breeding attempts and fledglings by species across the reserve as a whole in 2021

Species	Pairs	Breeding attempts	Fledged chicks
Avocet	12	12	2
Lapwing	18	19	7
Little Ringed Plover	5	5	0
Oystercatcher	18	17	4
Redshank	1	1	0
Ringed Plover	1	1	0
Totals	**55**	**55**	**13**

Table 3.2 Total number of breeding attempts and fledglings by species across the reserve as a whole in 2022

Although the overall number of nesting pairs were higher in 2022 compared to the previous year, the number of fledged chicks were significantly lower, worryingly so. It is not yet known the reasons for the high failure rates across all of the lagoons. There were certainly no predation events noted during the times in which the volunteers were carryig out their surveys. However, on a number of occasions, staff witnessed Jackdaws walking amongst the Black-headed Gull breeding colony on the islands of Lagoon 4 without eliciting a response from the gulls. This is very different to the response seen when a larger corvid or raptors such as a Buzzard or Red Kite goes near the lagoon. On one occasion a Jackdaw was seen taking an egg, on another occasion one was seen taking an unidentified chick.

Lagoons 1 - 3

As in previous years, Lagoons 1 - 3 were monitored by members of staff, as there is far less suitable nesting habitat for waders on these lagoons. A pair of Oystercatcher were observed nesting on Lagoon 1 but hatching success, number of chicks or fledging success could not be confirmed due to the height of the vegetation on the island. A pair of Oystercatcher also nested on Lagoon 3, succesfully rearing two chicks. A pair of Avocet, which had nested on Lagoon 4 led their two chicks to Lagoon 3 at a young age where they successfully fledged.

Lagoon 4

Following on from the breeding success in 2021, attributed in part to the reprofiling works undertken in the previous winter, Lagoon 4 once again saw the greatest number of nesting pairs of waders. The Black-headed Gull colony also grew from 89 pairs in 2021 to around 350 pairs in 2022. Last year the colony was considered to have been a benefit to the wading birds as the Black-headed Gulls acted as an 'early warning system' and used a 'strength in numbers' approach to see off aerial predators. This was certainly the case for large predators. However, Jackdaws did not seem to provoke a similar response. Despite the added protection from the gulls, Lagoon 4 had the lowest success rate of any of the lagoons with only five chicks fledging from 37 breeding attempts (two of which were the Avocet chicks which were reared on Lagoon 3). Another theory for the low success rate could be down to terrestrial predators accessing the chain of islands under the cover of darkness. While the predator gate installed near Dunlin Hide prevents mammals from reaching the islands via the access ramp, a number of tracks, presumably made by Badgers, have been noted leading from the tertiary treatment works (where there is a known set), to the northern edge of Lagoon 4. It is unknown whether they are swimming across the deep water channel to the islands from here. Hopefully this can be proven (or otherwise) in the 2023 breeding season by using trailcams positioned along the shoreline.

Species	Lagoon 1		Lagoon 2		Lagoon 3		Lagoon 4		Lagoon 5		Lagoon 6		Lagoon 7		Lagoon 8		Totals	
	BA	FC	BA	FC	BA	FC	BA	FC	BA	FC	BA	FC	BA	FC	BA	FC	Breeding attempt	Fledged chicks
LP	0	0	0	0	0	0	5	2	0	0	0	0	0	0	0	0	5	2
AV	0	0	0	0	0	0	10	30	0	0	0	0	0	0	0	0	10	30
L.	0	0	0	0	0	0	12	14	4	0	5	3	5	1	1	1	27	19
OC	0	0	0	0	0	0	7	8	2	0	2	2	1	0	4	2	16	12
RK	0	0	0	0	0	0	0	0	0	0	2	3	1	4	0	0	3	7
Totals	**0**	**0**	**0**	**0**	**0**	**0**	**34**	**54**	**6**	**0**	**9**	**8**	**7**	**5**	**5**	**3**	**61***	**70**

Table 3.3 Number of breeding attempts and fledged chicks per species and per lagoon in 2021. BA - breeding attempt, FC - fledged chicks, LP - Little-ringed Plover, AV - Avocet, L. - Lapwing, OC - Oystercatcher, RK - Redshank. *note - a failed nesting attempt on Lagoon 3 by an Oystercatcher early in the season is not recorded in the table.

Species	Lagoon 1		Lagoon 2		Lagoon 3		Lagoon 4		Lagoon 5		Lagoon 6		Lagoon 7		Lagoon 8		Totals	
	BA	FC	BA	FC	BA	FC	BA	FC	BA	FC	BA	FC	BA	FC	BA	FC	Breeding attempt	Fledged chicks
LP	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	5	0
AV	0	0	0	0	0	0	12	2	0	0	0	0	0	0	0	0	12	2
L.	0	0	0	0	0	0	9	3	1	0	5	2	4	2	0	0	19	7
OC	1	0	0	0	1	2	10	0	0	0	2	0	1	2	2	0	17	4
RK	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0
RP	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
Totals	**1**	**0**	**0**	**0**	**1**	**2**	**37**	**5**	**1**	**0**	**8**	**2**	**5**	**4**	**2**	**0**	**55**	**13**

Table 3.4 Number of breeding attempts and fledged chicks per species and per lagoon in 2022. BA - breeding attempt, FC - fledged chicks, LP - Little-ringed Plover, AV - Avocet, L. - Lapwing, OC - Oystercatcher, RK - Redshank, RP Ringed Plover.

Lagoon 5

As in 2021, there were no succesful breeding attempts on Lagoon 5 again this year. Only one pair of Lapwing attempted to breed, but was unsuccessful. As this has been the case for a number of years, the decision has been made to leave the water levels high on Lagoon 5 in the summer of 2023 to discourage waders from breeding here.

Lagoon 6 and 7

Lagoon 6 and 7 had the greatest success rates of any of the Lagoons in 2022, in relation to fledged chicks relative to breeding attempts. Lagoon 6 was the only lagoon on the Reserve where Redshank attempted to breed this year, but they were unsuccesful in fledging chicks.

Lagoon 8

There were no succesful breeding attempts on Lagoon 8 this year. Only one pair of Oystercatcher attempted breeding, but they were unsuccesful. It is unclear what the reasons are behind this, but it has been suggested that the nesting Marsh Harriers in the adjacent Field 16/Heron Bay reedbed could have contributed to the failure of any waders to breed on this lagoon.

A summary of all of the breeding attempts and fledged chicks on each lagoon in both 2021 and 2022 can be found in tables 3.3 and 3.4

Conclusions

Overall there were fewer breeding attempts and significantly fewer fledged chicks in 2022 across the Reserve compared to 2021. The biggest change was on Lagoon 4 where it has been considered that predation was in part responsible for the poor breeding success. Year on year the number of Avocets fledging was significantly low, compared to the number of nests. Despite two more nests in 2022 than in 2021, only two chicks fledged succesfully - compared to 30 in 2021. Although there were few observed predation events during the survey period, it is unknown whether terrestrial predators were taking eggs/chicks under the cover of darkness. With a four-fold increase in Black-headed Gull nests on Lagoon 4 in 2022, it would have been expected that breeding success would have increased on that Lagoon. As it stands, Lagoon 4 had the worst fledging success of any of the eight lagoons compared to the previous year.

Oystercatcher with chicks. © LRWT

Bird Ringing Report

5598 birds of 51 species were processed by the Rutland Water Ringing Group in 2022. Highlights included the confirmation of breeding Nightingale in the Lagoon 3 CES (juvenile pictured) © Luke Nelson

Juvenile Nightingale © Luke Nelson

Terminology and abbreviations used in this report

BTO - The British Trust for Ornithology, the charitable body who coordinate and oversee all ringing licencing and activities in the U.K
CES - Constant Effort Site, a standardised method of ringing whereby nets are set in the same place year on year for 12 visits within 10 day periods between May and September.
CONTROL - A bird caught by a ringer more than 5km away from the site where it was originally ringed
PROCESSED - The term referring to processing of a bird for ringing, re-trap or control.
PULLI – Refers to the juvenile birds (chicks) in the nest, unable to fly or fly very weakly.
RAS – The Re-trap Adults for Survival (RAS) scheme is a national standardised ringing programme within the BTO Ringing Scheme, ringers aim to catch or re-sight at least 50 adult birds of a single species within the breeding season.
RECOVERY - A bird caught as in control above or a bird found by a third party e.g. reported by a member of the public.
RETRAP - A bird caught by a ringer at the same site where it was originally ringed or, if sites are close together, a bird caught within 5km of where it was first ringed.
RINGED - The application of a ring to a bird's leg. Data such as age, sex, wing length, weight etc are also obtained.
RINGING BASE - Birds are brought back to a central area for processing.

2022 Summary

Luke Nelson

2022 saw the continuation of our long term ringing projects including our two CES sites, Sand Martin RAS & nest monitoring, Black-headed Gull colour-ring project, and nest box monitoring. General ringing at established sites continued, as well as a trial of the BTO's winter ringing project. A total of 5598 birds of 51 species were processed at Rutland Water during 2022, compared with 5880 in 2021, 3679 in 2020 and 6538 in 2019. A summary of all birds processed in the year can be found in table 4.1.

Monthly public ringing demonstrations took place during the winter, held at AWBC and Lyndon. These proved popular and were well received. We also ran demonstrations for Wildlife and Conservation first year students from Nottingham Trent University in September, and for the Rutland Wildlfe Watch Group in November. Thank you to Garry & Candice Barker, Colin Hewitt and Linda Clark for their help in running these demonstrations, Paul Stammers for his help with scribing, and Laura Brady, Libby Smith and Abi Mustard for organising and helping facilitate the events.

CES

The Constant Effort Sites (CES) scheme is the first national standardised ringing program within the BTO and has been running since 1983. Ringers operate the same nets in the same locations over the same time period at regular intervals through the breeding season at around 120 sites throughout Britain and Ireland.

The Scheme provides information on population size, breeding success and survival of 24 common songbird species living in scrub and wetland habitats. The species monitored by CES are Song Thrush, Willow Tit (Red Listed), Dunnock, Willow Warbler, Bullfinch, Reed Bunting (Amber Listed), Robin, Blackbird, Cetti's Warbler, Sedge Warbler, Reed Warbler, Whitethroat, Lesser Whitethroat, Garden Warbler, Blackcap, Chiffchaff, Long-tailed Tit, Blue Tit, Great Tit, Treecreeper, Chaffinch, Greenfinch and Goldfinch.

Rutland Water Nature Reserve operates two established CES sites at Lagoon 3 and Field 16. The Lagoon 3 CES program started during the CES schemes inception in 1983 and has been run almost continuously since then. The Field 16 CES site was established in 2008 and has been run continuously since its inception.

Lagoon 3

The Lagoon 3 CES site operates a total of 144m of mist nets through a variety of woodland, wet scrub and reed bed. All 12 of the 12 recommended visits were successfully completed at Lagoon 3 in 2022. 614 birds were processed as part of CES, up from 531 the previous year.

Habitat management had taken place around the CES site during the preceding winter, with an area of willow coppiced and the channels in the reedbed cleared out to allow more water in to the reedbed. A result of the reduced scrub layer, no Grasshopper warblers were caught this year, unlike the previous year when the reedbed was dry enough to provide them with suitable habitat.

In all, four of the 24 species monitored by the CES scheme were not caught at this site in 2021: Willow tit, Chaffinch, Greenfinch & Goldfinch. However, five non-CES species were caught: Grasshopper Warbler, Jay, Kingfisher, Nightingale and Hobby. Breeding of Kingfisher, Jay and Nightingale were all confirmed by first year birds being caught during CES sessions. Both the adult male and female Nightingale of the breeding pair were caught during the sessions, an egg was felt in the female at the time.

Notable retraps include a Sedge Warbler – ANK6723 – which was originally ringed on 30th July 2020 at Titchfield Haven National Nature Reserve Hampshire age 3. Caught on 14th June 2022 as 4F

Total number of birds processed at RWNR in 2022				
Species	Full-grown	Re-traps/recoveries	Pulli	Total
Barn Owl	1	0	13	14
Blackbird	99	58	0	157
Blackcap	487	57	0	544
Black-headed Gull	0	2	63	65
Blue Tit	308	147	265	720
Brambling	1	0	0	1
Bullfinch	46	13	0	59
Cetti's Warbler	24	33	0	57
Chaffinch	32	5	0	37
Chiffchaff	230	27	0	257
Coal Tit	9	2	0	11
Collared Dove	1	0	0	1
Common Tern	0	0	44	44
Dunnock	104	78	0	182
Garden Warbler	55	13	0	68
Goldcrest	69	20	0	89
Goldfinch	10	1	0	11
Great Spotted Woodpecker	4	0	0	4
Great Tit	106	47	105	258
Green Woodpecker	2	0	0	2
Hobby	1	0	0	1
Jackdaw	0	3	12	15
Kestrel	1	0	0	1
Kingfisher	5	0	0	5
Lapwing	0	1	0	1
Lesser Redpoll	3	1	0	4
Lesser Whitethroat	12	5	0	17
Linnet	4	0	0	4
Little Owl	0	0	4	4
Long-tailed Tit	157	81	0	238
Marsh Tit	1	0	0	1
Nightingale	5	6	0	11
Oystercatcher	0	1	0	1
Pied Wagtail	2	0	4	6
Redwing	60	0	0	60
Reed Bunting	98	39	0	137
Reed Warbler	177	60	0	237
Robin	130	59	0	189
Sand Martin	48	303	1081	1432
Sedge Warbler	121	88	0	209
Siskin	1	0	0	1
Song Thrush	30	12	0	42
Sparrowhawk	2	0	0	2
Spotted Flycatcher	2	0	4	6
Stock Dove	2	0	6	8
Tawny Owl	0	0	3	3
Treecreeper	21	15	0	36
Water Rail	1	0	0	1
Whitethroat	17	1	0	18
Willow Warbler	56	10	0	66
Wren	188	73	0	261
Totals:	**2733**	**1261**	**1604**	**5598**

Figure 4.1 Total number of birds processed at Rutland Water in 2022

Number of birds processed at Lagoon 3 CES in 2022				
	Adult	Juvenile	Full-grown	Total
Blackbird	11	16	0	27
Blackcap	26	105	0	131
Blue Tit	9	46	0	55
Bullfinch	4	0	0	4
Cetti's Warbler	1	4	0	5
Chaffinch	0	1	0	1
Chiffchaff	7	55	0	62
Dunnock	8	13	0	21
Garden Warbler	5	4	0	9
Great Tit	4	19	0	23
Hobby	1	0	0	1
Kingfisher	2	2	0	4
Long-tailed Tit	1	6	11	18
Nightingale	3	0	0	3
Reed Bunting	6	0	0	6
Reed Warbler	43	44	0	87
Robin	5	19	0	24
Sand Martin	0	1	0	1
Sedge Warbler	27	44	1	72
Song Thrush	6	3	0	9
Treecreeper	2	3	0	5
Whitethroat	0	1	0	1
Willow Warbler	2	5	0	7
Wren	12	26	0	38
Totals	**185**	**417**	**12**	**614**

Figure 4.2 Lagoon 3 CES totals (full grown refers to a bird that cannot be accurately aged due to their moult strategy)

2nd year old Hobby caught on 26th August © Luke Nelson

Field 16

The Field 16 CES operates a total of 180m of mist nets through a variety of woodland, wet scrub and reed bed. 11 of the 12 recommended visits were successfully completed at Field 16 in 2022. 617 birds were processed in total at this site, up from 582 the previous year.

Three of the 24 CES target species were not caught at this site in 2022: Chaffinch, Greenfinch & Willow Tit. The latter two species were not recorded here during the CES in 2021 either, reflecting recent declines of these species nationally. Additional species caught during the sessions included Water Rail, Spotted Flycatcher, Pied Wagtail and Great Spotted Woodecker. Juveniles of Goldcrest and Marsh Tit were caught, confirming successful breeding on the Reserve. This site in particular is productive for Willow Warblers, compared to other CES sites nationally where there has been a decline.

The site yielded a foreign control with a Belgian ringed Sedge Warbler in an early visit, caught during return migration the previous year. Also Sedge Warbler = ALN1804 – ringed 03/08/2020 at Water Drill, Shuart, St Nicholas-at-Wade, Kent as age 3. Retrapped 30/04/2022 CES LAX 4

Habitat management work to remove willow scrub from the reedbeds around the Field 16 CES site was undertaken in the winter of 2022/23.

Number of birds processed at Field 16 CES in 2022				
	Adult	Juvenile	Full-grown	total
Blackbird	12	13	0	25
Blackcap	12	81	1	94
Blue Tit	7	29	0	36
Bullfinch	7	11	0	18
Cetti's Warbler	4	4	0	8
Chiffchaff	4	60	0	64
Dunnock	14	12	0	26
Garden Warbler	13	8	0	21
Goldcrest	0	6	0	6
Goldfinch	5	0	0	5
GS Woodpecker	1	1	0	2
Great Tit	2	4	0	6
Lesser W/throat	4	3	0	7
Long-tailed Tit	5	7	1	13
Pied Wagtail	2	0	0	2
Reed Bunting	15	4	0	19
Reed Warbler	42	41	0	83
Robin	3	33	0	36
Sedge Warbler	22	20	0	42
Song Thrush	7	1	0	8
Spotted Fly	0	1	0	1
Treecreeper	2	7	0	9
Water Rail	1	0	0	1
Whitethroat	1	4	0	5
Willow Warbler	11	11	0	22
Wren	13	45	0	58
Totals	**209**	**406**	**2**	**617**

Figure 4.3 Field 16 CES totals (full grown refers to a bird that cannot be accurately aged due to their moult strategy)

Fieldfare Ringing Area Summary

Chris Hughes

Between May and October, seven sessions produced 464 birds of 26 species. On stepping out of the car for the first session on 9 May, I was treated to a singing nightingale - in full song - which subsequently found a net and turned out to have been ringed as a juvenile in 2021 at the Lagoon 3 Constant Effort Site (CES). Historically, juvenile male Nightingales are not caught again in their natal area until two years have elapsed but this pattern is known to have changed over the last 25 years or so, as evidenced from my own records of retraps of this species at a CES site in Cambridgshire. This bird is continuing the more recent trend of returning the year after fledging. Much to my surprise, a second Nightingale found the same net at a session on 5 August. This bird, an adult male, had been ringed earlier in the year, again at the CES site at Lagoon 3. These two birds were the second and third nightingales to be caught here, the first being on 7 June 2019 and this one too was also in the same net as the 2022 birds, a net set in dense scrub fringed by willow. Breeding has not been proved but the location clearly has its attractions for this enigmatic species.

As well as the nightingales - and the more common species, the year also produced a Spotted Flycatcher, the first for at least 10 years, three redwings, a juvenile Marsh Tit and a Lesser Redpoll. The expected autumn passage of blackcap again produced impressive numbers, most being first year birds. Grasshopper Warbler, heard reeling, did not find the nets this year, nor did Cetti's Warbler, possibly due to only setting a limited number of nets to make processing any birds caught more manageable.

Recoveries

Blackcap - ring number ATJ6760 – ringed at FFH as an adult male on 20 September 2019 and controlled at Marsh Lane Reserve, Hampton-in-Arden, West Midlands on 2 May 2022 – 71km and 955 days after ringing.
Blue Tit – ring number AYX5816 – ringed at North Luffenham Airfield as a juvenile on 3 September 2022 and controlled at FFH on 20 September 2022 – 6km and 17 days after ringing.

Migrant Species

Blackcap – ring number ATN1797 – ringed as a juvenile on 2 September 2021 and retrapped on 22 September 2022.
Blackcap – ring number ATN1814 – ringed as an adult male on 2 September 2021 and retrapped on 9 May 2022.
Garden Warbler – ring number AXA0872 – ringed as an adult male on 9 June 2019, retrapped on 19 and 29 May 2021 and 9 May 2022.
Lesser Whitethroat – ring number ATN1657 – ringed as an adult male on 29 May 2021 and retrapped on 9 May 2022
Sedge Warbler – ring number ATN1681 – ringed as an adult male on 12 June 2021 and retrapped on 9 May 2022
Willow Warbler – ring number LBC560 – ringed as an adult male on 12 June 2021 and retrapped on 9 May 2022.

Resident Species

Blackbird – ring number LE70810 – ringed as an adult male on 20 April 2018 and retrapped on 15 July 2020 and 9 May 2022 when he was at least 5 years old.
Of the 12 Blackbirds ringed in 2018 two others, both ringed as juveniles on 5 August that year were also both retrapped in 2019 and 2021, when they were 3 years old.
Blackbird - ring number LE70867 – ringed as a juvenile on 21 August 2021, retrapped on 16 September 2021 and 5 August 2022.
Blue Tit – ring number ATN1775 – ringed as a juvenile on 21 August 2021 and retrapped on 22 September 2022.
Blue Tit - ring number ATN1919 – ringed as a juvenile on 8 September 2021 and retrapped on 9 May 2022.
2 out of 24 blue tit juveniles ringed here in 2021.
Dunnock – ring number TZ54234 – ringed as a juvenile on 15 July 2020, retrapped on 24 August 2020, 19 and 25 May 2021 and 9 May 2022.
Robin – ring number ATN1750 – ringed as a juvenile on 21 August 2021 and retrapped on 26 August, 1 September and 12 October 2022.

A summary of birds processed at Fieldfare ringing area can be found in table 4.4

Birds processed at Fieldfare Ringing Area in 2022			
Species	Ringed	Retrap	Total
Wren	16	3	19
Dunnock	15	8	23
Robin	7	3	10
Nightingale	0	2	2
Blackbird	5	3	8
Song Thrush	2	0	2
Spotted Flycatcher	1	0	1
Redwing	3	0	3
Sedge Warbler	8	6	14
Reed Warbler	6	0	6
Lesser Whitethroat	6	3	9
Whitethroat	12	0	12
Garden Warbler	27	4	31
Blackcap	184	14	198
Chiffchaff	35	0	35
Willow Warbler	5	1	6
Goldcrest	4	0	4
Long tailed Tit	9	1	10
Marsh Tit	1	0	1
Coal Tit	1	0	1
Blue Tit	40	7	47
Great Tit	10	0	10
Treecreeper	0	1	1
Lesser Redpoll	1	0	1
Bullfinch	8	1	9
Reed Bunting	1	0	1
Total	**407**	**57**	**464**

Table 4.4

Greenbank Ringing Area Summary

Colin Hewitt

A new project to conduct year long, standardised ringing at Greenbank was started in October 2022. In 2022, as a pilot study for a longer-term project, six standardised ringing visits were conducted using 144m of net in the same locations opened at dawn for 6 hours.

The purpose of the pilot project in 2022 was to assess the site for its suitability to contribute to a systematic winter ringing project scheme in subsequent years. This national Winter Ringing Project, established by the British Trust for Ornithology (BTO), aims to provide survival trend information and make more structured use of the passerine ringing data collected outside of the breeding season.

In addition to the national winter study, the local Reserve plan is to continue studying the population of birds at the site throughout the year at two to four week intervals.

Although too early to draw conclusions about the site and the characteristics of the population of birds using it in winter, a list of numbers of birds processed** can be produced. (Table 4.5). A full analysis of the pilot study will be included in the 2023 report.

Kingfisher © Luke Nelson

Total number of birds processed at Greenbank in 2022							
Species	Full-grown & Adult	Subsequent Encounter* Full Grown/Ad	New Juvenile	Subsequent Encounter* Juvenile	Total Adult & Full Grown Birds	Total Juvenile Birds	Total All Birds
Blackbird	4	0	15	3	4	18	22
Blackcap	0	0	3	0	0	3	3
Blue Tit	5	5	24	8	10	32	42
Brambling	0	0	1	0	0	1	1
Cetti's Warbler	3	3	1	0	6	3	9
Chaffinch	0	0	1	0	0	1	1
Chiffchaff	9	1	5	0	10	5	15
Dunnock	1	3	3	1	4	4	8
Goldcrest	10	2	8	9	12	17	29
Goldfinch	0	0	1	0	0	1	1
Great Spotted Woodpecker	0	0	1	0	0	1	1
Great Tit	1	0	3	0	1	3	4
Long-tailed Tit	55	14	0	0	69	0	69
Redwing	1	0	3	0	1	3	4
Reed Bunting	0	1	4	0	1	4	5
Reed Warbler	0	0	1	0	0	1	1
Robin	2	2	9	10	4	19	23
Sedge Warbler	0	0	0	0	0	0	0
Siskin	0	0	1	0	0	1	1
Song Thrush	0	0	1	0	0	1	1
Sparrowhawk	0	0	1	0	0	1	1
Treecreeper	2	1	0	0	3	0	3
Wren	1	5	27	11	6	38	44
Totals:	**94**	**37**	**115**	**42**	**131**	**157**	**288**

Table 4.5

*Birds that are trapped who already carry a ring. Data from recaptured birds is key to understanding life-cycle and population dynamics including survival, breeding productivity and migration/stopover strategies.
**Processing is the analysis of birds for various biometrics before release. This includes a check for the presence of a ring, determination of species, age, sex, moult stage, size (wing-length and mass) and condition by fat deposition (as a marker of energy reserves or stores).

Lyndon Ringing Area Summary

Garry and Candice Barker

Typically, the ringing site at Lyndon has between 350 to 400 feet of mist netting erected during the sessions and normally we don't ring on the site between the end of December and mid March. However, if we are carrying out ringing demonstrations for the general public we utilise the feeding station in the wildflower meadow in front of the centre, as well as the ringing site, to enable us to process a variety of birds. The numbers of birds captured each session varies but our lowest session total in 2022 was 35 birds in November and our highest session total was 94 in September.

In 2022 a total of 8 mist netting sessions were carried out with just under 500 birds processed of 29 species. Unusually, the 8 sessions were not spread out across the April to December period but were in late summer, autumn and winter which gives a different slant to the numbers of each bird species encountered.

The number of Redwing ringed on the site this year was a highlight. We caught one on the 10th November and for the next three sessions caught 13, 17 and finally 19 which was on our last session of 2022 on 20th December. This demonstrates the value of this scrub area to provide food and refuge for these winter migrants.

The total number of birds processed at the Lyndon Ringing Area in 2022 can be seen in table 4.7

We continued our small hole cavity nest box monitoring in 2022. Having assessed the occupancy of each nest box from previous years we made the decision to focus our efforts on just three wooded areas and not replace those in other areas, where occupancy was low, when the boxes fell into disrepair. This reduced the number of boxes we check to 83 including 8 open fronted boxes. Some of the retraps in the table above are from these boxes and are mentioned in the recoveries table. It is also worth noting that the survival rate of the chicks in 2022 was the worst we have encountered since we started monitoring boxes in 2009 as shown in the table 4.6

The reasons for this are unknown but some thoughts are it could be one of the following or a combination of these: - the extended period of high temperatures last summer, the miss timing of the chick hatching and availability of the caterpillar food supply or increased predation of adults and/or chicks in the boxes.

Species	Number of Broods	Number of Chicks	Dead Chicks	% of Dead Chicks
Blue Tit	29	230	35	15%
Great Tit	15	63	8	13%
Totals	**44**	**293**	**43**	

Table 4.6 Broods, chicks and dead chicks from Lyndon nest boxes

No pulli from nestboxes located to the east of Gibbet Gorse have been encountered in our mist netting operations at Lyndon. This could be due to the fragmentation of wildlife habitats and lack of wildlife corridor connectivity between Gibbet Gorse and Berrybutts.

Birds processed at Lyndon Ringing Area in 2022			
Species Name	Ringed	Retrap	Total
Kestrel	1		1
Green Woodpecker	2		2
Great Spotted Wood	1		1
Wren	15	4	19
Dunnock	25	14	39
Robin	15	8	23
Song Thrush	3	1	4
Redwing	51		51
Blackbird	18	4	22
Garden Warbler	4	2	6
Blackcap	44	5	49
Whitethroat	2	1	3
Lesser Whitethroat	4		4
Sedge Warbler	3	2	5
Reed Warbler	1		1
Willow Warbler	17		17
Chiffchaff	17	1	18
Goldcrest	20	9	29
Great Tit	14	20	34
Coal Tit		1	1
Blue Tit	62	54	116
Long-tailed Tit	6	12	18
Treecreeper	2	2	4
Chaffinch	1		1
Linnet	4		4
Lesser Redpoll	2	1	3
Goldfinch	2	1	3
Bullfinch	13	2	15
Reed Bunting	1		1
Total (29 Species)	**350**	**144**	**494**

Table 4.7 Total birds processed at Lyndon Ringing Area in 2022

A table of significant recoveries and notable recaptures from 2022 can be seen in table 4.8

Key to Recoveries and Notable Recaptures history: - Record Type:- New - Ringed fitted, Control - bird ringed at another site > 5kms away, Recaptured – the bird hasn't travelled further than 5kms but has been ringed previously.
Age:- 1 = pullus (nestling or chick), 2 = fully grown, exact year of hatching unknown 3 = hatched in calendar year of ringing 3J = still present some juvenile feathers that it left the nest with 4 = hatched before the calendar year of ringing, exact year unknown 5 = hatched during the previous calendar year 6 = hatched before the previous calendar year, exact year unknown
M= male F= female U =unknown (some birds you can only sex in the breeding season)

Recoveries and Notable Recaptures in 2022 (Lyndon Ringing Area)							
Record Type	**Ring Number**	**Age**	**Sex**	**Date**	**Place**	**Distance travelled**	**Duration**
Lesser Redpoll							
New	ANT3713	3J		19.7.2022	Geltsdale, Cumbria		
Control		3		10.11.2022	Lyndon	283km	3mths 22days
Interesting movement							
Treecreeper							
New	LLY199	3		13.06.2022	Field 16, Lax Hill		
Recaptured		2		20.09.2022	Lyndon	1.0 km	3mths 7days
Interesting dispersal							
Blackcap							
New	AXA0362	3J		26.06.2018	Lyndon		
Recaptured		4	M	28.07.2022	Lyndon	0km	4yrs 1mth 2days
Juvenile returning to breed in natal area							
New	AEA3831	3J		16.07.2019	Lyndon		
Recaptured		4	M	28.07.2022	Lyndon	0km	3yrs 12 days
Juvenile returning to breed in natal area							
New	ATN1979	3	M	16.09.2021	Fieldfare, Lax Hill		
Recaptured		4	M	20.09.2022	Lyndon	1.0km	1yr 4 days
Interesting juvenile dispersal							
Chiffchaff							
New	JTV654	3J		02.07.2019	Lyndon		
Recaptured		4		20.09.2022	Lyndon	0km	3yrs 2mths 18days
Interesting age							
Long Tailed Tit							
New	JTV570	2		8.10.2017	Lyndon		
Recaptured		2	U	25.01.2022	Lyndon	0km	4yrs 3mth 17days
Interesting age							
New	LBC238	2		6.11.2019	Lyndon		
Recaptured		2		20.09.2022	Lyndon	0km	2yr 10mths 14days
Interesting age							
Garden Warbler							
New	ARD4049	4	F	27.06.2018	Lagoon 3 CES		
Recaptured		4		28.07.2022	Lyndon	2km	4yrs 1mth 1day
Returning breeding adult							
New	AEA3716	4	F	23.6.2019	Lyndon		
Recaptured		4		28.07.2022	Lyndon	0km	3yr 1mths 5 days
Returning breeding adult							
Blue Tit							
New	AEA3889	3	U	06.11.2019	Lyndon		
Recaptured		4	U	20.09.2022	Lyndon	0km	2yrs 10mths 14days
Interesting age							
Blue Tit							
New	AFY1350	3		26.08.2022	Lagoon 3 CES		
Recaptured		3		29.11.2022	Lyndon	2km	3mths 3days
Good example of local juvenile dispersal							
Blue Tit							
New	AJV6219	1		26.05.2022	Lagoon 3, Nest Box		
Recaptured		3J		05.08.2022	Fieldfare, Lax Hill	1.0km	2mths 10days
Recaptured		3		10.11.2022	Lyndon	2.0km	5mths 15days
Recaptured		3		09.12.2022	Lyndon	2.0km	6mths 13days
Good example of local juvenile dispersal							
Great Tit							
New	S892687	3J		01.08.2017	Lyndon		
Recaptured		4	F	10.11.2022	Lyndon	0km	5yrs 3mths 9days
Interesting age							
New	AEA3735	3J		23.06.2019	Lyndon		
Recaptured		4	M	29.11.2022	Lyndon	0km	3yrs 5mths 6days
Interesting age							
New	AEA3910	3	M	04.12.2019	Lyndon		
Recaptured		4	M	29.11.2022	Lyndon	0km	2yrs 11mths 25days
Interesting age							
New	NY13156	1		16.05.2019	Gibbet Gorse Nest Box		
Recaptured		4	M	29.11.2022	Lyndon	1km	3yrs 6mths 13days
Interesting age							
Coal Tit							
New	AXA0382	5		21.01.2019	Lyndon		
Recaptured		4		29.11.2022	Lyndon	0km	3yrs 10mths 8days
Interesting age							
Song Thrush							
New	RT95498	5	F	23.05.2019	Lyndon		
Recaptured		4	F	08.08.2022	Lyndon	0km	3yrs 2mths 16days
Breeding female returning							
Common Whitethroat							
New	AVH2894	4		01.09.2020	Lyndon		
Recaptured		4	F	28.07.2022	Lyndon	0km	1yr 10mths 27days
Breeding female returning							

Table 4.8

Sand Martin Ringing

Tim Sexton

Artificial Sand Martin nesting banks can create long lasting nesting opportunities for Sand Martins where natural banks are either unstable or where suitable habitat is not available in a given area. In the case of Rutland Water, there are lots of feeding opportunities for Sand Martins, especially with the abundance of emergent aquatic invertebrates, but historically there has been little nesting opportunity. The first artificial Sand Martin nesting bank at Rutland Water was created on Lagoon 2 in 1999 and provided 347 nest holes. The bank was an instant success and a second bank followed on Lagoon 5 in 2014 which contained 485 nest holes.

This provision of artificial nesting habitat has meant that the number of breeding Sand Martins at Rutland Water has increased dramatically in recent years.

The design of the nesting banks enable access to the nesting chamber and give us an insight to the life of Sand Martins that wouldn't be possible in a natural nesting bank. Since 2012, nest records have been collected and submitted to the national Nest Record Scheme (coordinated by the BTO). Currently, around 40% of all nest records for Sand Martins in the UK come from Rutland Water.

Weekly checks of the two banks are carried out from late April until the end of August and the chicks are ringed when they reach a suitable age. Between one third and half of the UK Sand Martin pulli ringing is carried out at Rutland Water Nature Reserve.

Along with ringing Sand Martin chicks, in 2011 we started contributing data to the British Trust for Ornithology's (BTO's) Nest Record Scheme. Every week in the breeding season, from the moment the first twig is brought in to the bank to the time the last chick fledges a record of the various stages in the nesting cycle are recorded. This would be impossible in a natural Sand Martin nesting bank, so the artificial banks at Rutland have contributed vital information about this species nesting ecology. In fact, around 40% of the UK's nest records for Sand Martins come from Rutland Water!

In 2022 a total of 1081 Sand Martin chicks were ringed with almost 500 nest records submitted to the BTO. A summary of eggs and fledged birds over the year is shown in table 5.1

Along with ringing Sand Martin chicks we also study returning adults, many of which are already ringed birds from previous years, through the Retrapping Adults for Survival project (RAS). Towards the end of the first brood, a team of licensed ringers head out to one of the Sand Martin banks and run an 18m net along each face of the bank to catch the birds as they emerge. The trained and licensed ringers carefully extract them from the nets and take them back to the base station where they record any ring numbers or ring any new birds.

The RAS helps us to see adult survival rates, understand how long Sand Martins live for and see which birds return to Rutland in subsequent years. Up to 200 birds can be caught in the session and based on previous year's results some 80% of these are recaptures from chicks born here or adults caught in previous RAS sessions – an incredible recapture rate. A summary of the RAS sessions from 2022 is shown in figure 5.2

Sand Martin Nest Summary 2021/22		
First Brood	**2021**	**2022**
Number of Eggs	1165	921
Number Fledged	804	664
Percentage Fledged	69%	72%
Number of Nests	261	201
Eggs per Nest	4.46	4.58
Second Brood	**2021**	**2022**
Number of Eggs	1138	780
Number Fledged	755	423
Percentage Fledged	66%	54%
Number of Nests	297	206
Eggs per Nest	3.83	3.79
Third Brood	**2021**	**2022**
Number of Eggs	257	16
Number Fledged	120	0
Percentage Fledged	47%	0%
Number of Nests	76	10
Eggs per Nest	3.38	1.6
Overall Total	**2021**	**2022**
Number of Eggs	2560	1717
Number Fledged	1679	1087
Percentage Fledged	66%	63%

Table 5.1 Sand Martin Nest Summary 2021/2022

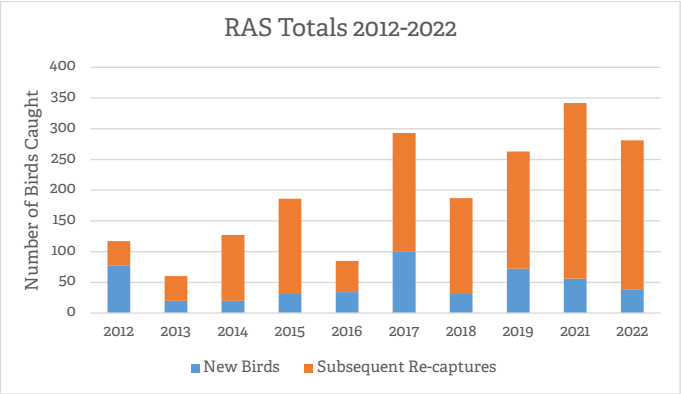


Figure 5.2 RAS Totals 2012-2022

The number of chicks raised in 2022 was considerably lower than the previous year - which was the best year for productivity in the history of the project. Whilst there were far fewer active nests in each of the three broods in 2022, compared to 2021, the greatest difference was in the third brood were no chicks fledged. This was attributed to the record temperatures experienced in July, which coincided with the end of the second broods. Any eggs which had been laid seemingly 'cooked' and a subsequent lack of flying insects made it difficult for adult Sand Martins to find food for remaining juveniles.

Over 15,000 Sand Martins have now been ringed at Rutland Water since 2001. A graph showing the number of pulli (chicks) ringed between 2001 and 2022 is shown in figure 5.3

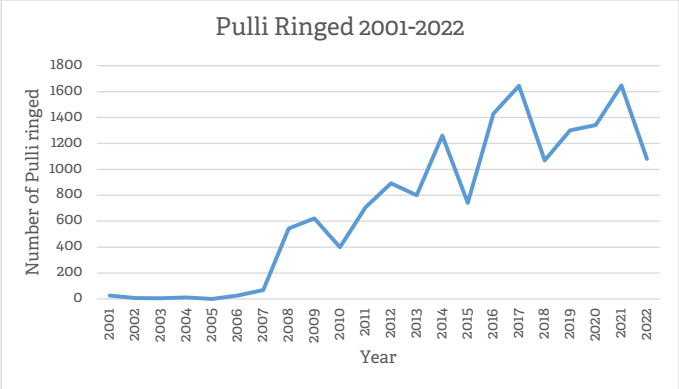


Figure 5.3 Pulli Ringed 2001-2022

Sand Martin Eggs © Luke Nelson

Sand Martin Chicks © LRWT

Colour Ringed Birds

Colour Ringed Birds

Steve Lister

The use of colour marking techniques such as coded plastic leg-rings, nasal saddles and wing-tags in addition to the standard metal rings used by ringers enables individual birds to be identified without being recaptured, as long as birders watch out for the various marks and then read and report them.

As well as always searching for colour-marked birds myself I have collated the sightings of other people at Rutland Water and elsewhere in Leicestershire and Rutland for over ten years. 2022 was fortunately free of the recent restrictions caused by Covid precautions and so observers were hoping for plenty of sightings.

A total of 70 colour-marked birds was seen at Rutland Water in 2022, featuring ten different species. The majority were Black-headed Gulls that had been ringed at Rutland Water between 2018 and 2022 and these birds, 44 in number, are not detailed in this article as it is more useful to consider them along with the many others from the scheme that have been observed away from Rutland Water.

Avocet

Three colour-ringed Avocets were seen in or around the breeding colony on Lagoon 4 but frustratingly details are only available for one of them. R(A1)-R(A1), seen just three times on April 15th, May 17th and June 17th must have been one of the birds nesting on the furthest island from the viewpoints as on the last date it was accompanying two small chicks. It was ringed as a chick on a private reserve near Ely, Cambridgeshire in 2010 so was a 12 year-old bird: during its first six years it had been seen many times in Lincolnshire, Cambridgeshire and Suffolk but after that the only sightings were in Cambridgeshire in 2019.

Two other Avocets with colour rings were seen but were not traced. One is a complete mystery as it had just a tiny inscribed pale blue ring: this bird was only obvious at very close range and it was not until it was on Lagoon 3 with its chicks towards the end of the season that the ring was noticed. The third bird was only seen on April 19th and is thought to have been from a French scheme: using the scheme's notation it was G1-RNR, the G1 representing a green ring with one horizontal bar, but the online reporting system does not recognise this code and the scheme administrator has not replied to emails.

Lapwing.

The bird with a leg flag and a combination of coloured rings (Bf//Y-R//GG) seen in the summers of both 2020 and 2021 and ringed as a chick at Elmley RSPB, Kent in May 2020 was here again, seen on Lagoon 3 between July 15th and August 16th. Unfortunately its predated corpse was found by palaeontologists checking Lagoon 4 for fossils on August 23rd.

Black-tailed Godwit
A juvenile with the combination GO-BL(E) on Lagoon 3 between July 15th and 23rd proved to be one of the head-started birds from Project Godwit, the scheme operating on the Ouse and Nene washes in which first-brood eggs are taken from wild nests then hatched and reared in captivity before release. This bird had been released on the Nene Washes on June 22nd.

All colour-ringed Black-tailed Godwits seen in previous years have been of the subspecies *islandica* whereas this is the subspecies *limosa* which breeds scarcely in the fens and in Europe.

Greenshank
GR-YY seen on Lagoon 1 on July 20th had been ringed at Chichester Harbour, West Sussex on September 8th 2013; it had been seen in the same area each autumn to 2018 and then at Breydon Water, Norfolk in July 2017.

Black-headed Gull
This species produced by far the most colour-ring sightings due to the large numbers of chicks ringed at Rutland Water since 2018 and returning to their natal colony: these birds have blue rings with codes beginning with 2A, 2B or 2C followed by another two letters. 44 were seen during the spring and summer, but the sightings are best considered along with the many reports of these and other birds from the project from elsewhere.

Eight from elsewhere were also seen, mainly amongst the breeding colony on Lagoon 4. In date order these were:
Blue T4J6 on March 8th, ringed as a chick in Poland in 2020. No other sightings.
White J0517 on March 23rd, ringed as a chick in southern Norway in June 2021 and seen around Oslo until August that year.
Yellow 2RVH on April 19th, 22nd and 26th and ringed as a chick in Essex in June 2016, seen in Lincolnshire in April 2018.
Orange 2B38 regularly between April 19th and June 21st but no indication of breeding: ringed as a chick near Ely, Cambridgeshire in 2015 and already seen at Rutland Water in 2018 and 2020.
Green 2L31 on May 6th, ringed as a chick in Highland, Scotland in June 2021. No other sightings.
Black 2CPV on May 6th and 27th, ringed as a chick at Meriden, West Midlands in June 2018 and seen in Ireland in July that year.
Black 2APT on May 27th, ringed as a chick at Meriden, West Midlands in June 2016 and seen there in April 2017.
Yellow T1PN on September 20th and October 29th, ringed as a breeding adult in Poland in May 2017 and a regular winter visitor at Rutland Water since 2017.

Mediterranean Gull
White 3PA2 arrived on Lagoon 4 on May 9th after being seen at Belvide Reservoir, Staffordshire on the 7th and 8th. It had been ringed as a chick in the Netherlands in June 2020 and stayed amongst the Black-headed Gulls until at least June 3rd. This was quite a wanderer as it had previously been seen in Ireland in September 2020, Spain in February 2021 and France in November 2021.
A bird with a green ring was seen four times between May 18th and 28th but unfortunately the code was not read.

Caspian Gull
Yellow XLVH on August 2nd was ringed as an adult male at the Grabendorfer See in northern Germany in April 2021 and was seen in both south Leicestershire and Northamptonshire in October that year,

Common Tern
Three colour-ringed birds were seen amongst those breeding on Lagoons 3 and 4, all birds that had also been there in 2021. Lime U55 on May 27th and July 20th was ringed as a chick at Watermead Country Park, Leicestershire in 2015. The other two came from a colony at Brandon Marsh near Coventry. The first was O-Rm, one of seven chicks marked identically in 2011: it or one of the other six had already been seen at Rutland Water in seven of the last nine years. This year it was present between April 19th and June 24th and bred. Finally, G(19)-Rm, present at least between May 6th and July 20th, was a chick ringed in 2016 and seen at Rutland Water in August/September 2019 as well as in 2021.

Cormorant
Very few chicks have been ringed at Rutland Water in recent years so sightings of local birds are dwindling fast, with just four birds seen this year, the same individuals as in 2021:
Yellow ZD4 (ringed in 2011) on April 8th, May 19th and July 5th
Yellow ZH7 (ringed in 2014) on May 9th
Yellow ZZ7 (ringed in 2014) on May 9th and regularly in July and August
Yellow ZI4 (ringed in 2013) on September 6th, 13th and 22nd and October 7th
Just one from elsewhere was noted, Orange 155 on September 22nd had been ringed as a 2022 chick at Halton, Merseyside and had already been seen at Spalding, Lincolnshire on August 22nd.

Rock Pipit
One at Normanton Church on November 19th was eventually read as Blue PAA and proved to be a bird ringed on the island of Vaasa in southern Finland, 1704 kilometres away, on September 26th. This is only the second colour-ringed Rock Pipit seen at Rutland Water, the other being a Norwegian bird on the dam in October 2018. Both will have been of the Scandinavian subspecies littoralis rather than the essentially sedentary British race petrosus.

Cover photo: Black-headed Gull, Blue 2CCS - ringed as a chick at Rutland Water on the tern raft in Burley Fishponds, 2021. Re-sighted in Bangor, Wales on 17/08/22.

Red-Backed Shrike on Wet Meadow © Tony Clarke

Rare Bird Report

Tim Appleton

Bewick's Swan
The only record for 2022 was 4 adult birds on 20th November on South Arm 3.

Whooper Swan
12 Whooper Swans were recorded on 4th January. Five birds remained until the 15th & 16th January. An unseasonable record was one on 8th April on Lagoon 4. The first winter arrivals were four on 29th September with a number of records in October, November and with the last record of three birds on 3rd December.

Pink-footed Goose
5 were recorded on 19th and again on 31st January. They remained throughout February and were last recorded on 18th March. The only other record was a flock of 55 flying east on 17th September.

White-fronted Goose
Two adults were first seen on 2nd February and remained through until 9th March.

Brent Goose
Two adult dark bellied Brent Geese flew over North Arm before landing in South Arm 3 on 30th November

Ruddy Shelduck
A single bird was recorded on 15th July

Red-crested Pochard
Although recorded in most months of the year, a high count of 47 on 16th November is notable.

Ring-necked Duck
A female Ring-necked Duck was found on Lagoon 7 on 5th April and again on 18th April.

Common Scoter
Surprisingly, there were only two records. Three birds on 22nd May and three again from 10th to 13th September.

Smew
Smew were present throughout the winter months with the highest count of 13 on 27th February. The last winter record was a late bird leaving on 4th April. The first bird to return was on 26th November.

Red-breasted Merganser
The only Red-breasted Merganser of the year was a female found on Lagoon 3 on 3rd December.

Red-throated Diver
A Red-throated Diver was recorded on 14th April at the dam.

Great Northern Diver
Great Northern Divers were recorded from January 1st through to a very late record of one on 5th May. Four seen together on 8th February was the highest count. A single bird was then present from 3rd November through to the end of the year.

Slavonian Grebe
A bird was present close to the dam from 1st to 27th January. A second bird was seen on 5 occasions from 5th November until the last record on 27th November.

European Shag
There were two records – both immature birds. The first recorded on 22nd November in South Arm 3 and one on 14th December at Normanton Church.

Bittern
Bitterns are recorded during the winter months only with sightings from January to March and an early July record from 8th July to the end of the year.

Cattle Egret
Cattle Egrets are increasing in the UK but still relatively rare at Rutland Water. One was present from 10th to 18th August and a second bird from 22nd to 27th September

Great White Egret
Once a very rare bird in Rutland, Great White Egrets are now a regular daily sighting. However 75 on 2nd October at the roost was one of the highest counts in the UK.

Glossy Ibis
A single record of a Glossy Ibis was seen flying over the North Arm on 28th May.

Spoonbill
The only record for 2022 was a single bird on 10th June

Hen Harrier
A ringtail Hen Harrier was recorded on 22nd October

Water Rail
Present all year round but rarely seen, however 41 were recorded by staff surveying this species on 17th January

Common Crane
3 Common Cranes were watched by several observers flying the length of the reservoir on 21st April.

Temminck's Stint
A single bird was on Lagoon 4 from 6th to 11th May.

White-rumped Sandpiper
A single bird was present on Lagoon 4 on 22nd May.

Common Sandpiper
A rare winter record of the species was found on 1st December in South Arm 3

Arctic Skua
A dark phase bird flew along the North Arm on 2nd October

Great Skua
A Great Skua flew along the length of North Arm flying West on 18th August

Mediterranean Gull
Mediterranean Gulls are beginning to become a regular bird seen mainly thoughout the summer months. A maximum of 5 were seen on 20th May on Lagoon 4

Little Gull
A single bird was present from 12th to 17th August on Lagoon 4

Kittiwake
An adult was seen at the dam on 20th of February

Little Tern
A Little Tern was recorded on 4th, 5th and 10th May flying between Lagoon 4 and the North Arm

Sandwich Tern
Three Sandwich Terns rested briefly on Lagoon 4 on 12th April.


Mediterranean Gull on Lagoon 4 Island © LRWT

Short-eared Owl
Once a common sighting but now rarely seen, one was seen on 9th January and a second bird was seen on 28th and 31st October.

Water Pipit
A Water Pipit was recorded in the North Arm on 22nd January

Willow Tit
A single bird was seen and heard singing at Snipe Hide on 19th April

Bearded Tit
In October there were three on the 18th, five on the 19th and seven on the 20th and 21st around the reedbeds on Lagoon 3. A single bird was present from the 2nd to 6th November

Red-backed Shrike
An immature Red-backed Shrike was recorded on Lagoon 1 from 11th to 17th September

Tree Sparrow
Once a very common bird at Rutland Water, now recorded only once on 15th March in the North Arm by a single observer

Siskin
Siskin are not uncommon during the winter months at Rutland Water but a flock of 200 was an exceptional number feeding on the Alder seeds by Lagoon 2 on 28th January.

Corn Bunting
Up to three Corn Buntings were found on the south-east side of Hambleton Peninsula on bird friendly set-aside land 31st December.

Ring-necked Parakeet
Ring-necked Pararkeets are slowly spreading Northwards. The only reserve record was one on 4th January on feeders at Burley Fishponds.

A Record Year for Egrets at Rutland

More egrets have been recorded at Rutland Water than ever before. **Terry Mitcham** looks at the history of these elegant birds on the site.

Great White Egret © Tony Clarke

A feature of climate change has been the arrival in Britain of birds which were formerly scarce visitors, some of which have become established as breeding species. Egrets fit nicely into this category: Cattle Egret (*Bubulcus ibis*), Great White Egret (*Ardea alba*) and Little Egret (*Egretta garzetta*).

The spectacular rise of the Little Egret followed a rather slow start. One at Eyebrook Reservoir on 5th June 1982 was the first in VC55 with Rutland Water recording its first on 19th August 1989. The species remained scarce to 2000 with most records of single individuals. There were nine on 25th July 2004, establishing a pattern of late summer peaks with 22 on 30th July 2008, increasing to 83 on 29th September 2011 and 88 on 14th July 2015. The century was broken in 2017 with 102 on 11th July and numbers have continued to increase with 127 on 18th August 2020 and an impressive autumn count of 142 on 2nd October 2022.

Breeding was first noted in a secluded part of the Nature Reserve in 2011, when two pairs nested. It has continued here to the present but the number of nests has been difficult to determine. 10 juveniles were seen on 8th July 2016 with six nests counted in May 2018 and 2021. Five nests were found in 2022. Two birds, colour ringed at Baston Pits in Lincolnshire, were seen in 2018.

Between 14th and 18th June 1988 a Great White Egret visited Saddington and Thornton Reservoirs and Rutland Water, arriving on Lagoon One at Egleton on the latter date. It was the first for VC55. The next was present on 26th May 1990 and from 2003 to 2015 there were a further eleven records, with three on 13th December 2015. In 2016 there were up to five between 15th July and 31st December and then followed a marked increase with records in all months in 2017, peaking at 13 on 28th November. 23 were counted on 11th November 2018 with annual peaks then increasing year on year; 23 in 2020, 39 in 2021 and 75 in 2022, these peaks between 2nd October (2022) and 10th October (2022).

Breeding of Great White Egret has yet to occur at Rutland Water but is surely likely in the not too distant future, perhaps in the Lagoon 3 reedbed.

The first Cattle Egret for VC55 was found at Egleton on 3rd April 1993, remaining until 15th April, mostly in fields near the village. The next was on 4th May 2009, staying to 10th May. There have been nine further records of singles between 2011 and 2022 with birds seen in January, June, August, October and November. The longest stay was the thirteen days of the 1993 bird.

References

Fray, R. et al. 2009. The Birds of Leicestershire and Rutland. Christopher Helm, London.

Marsh Harriers Breed for the First Time at Rutland Water

Jeff Davies

Whilst Osprey monitoring on March 24th Sue Walton and myself saw a female/juvenile Marsh Harrier flying around the the reeds at the back of Heron Bay. The bird appeared to fly from its roost mid morning and head towards Lagoon 1.

A week later on March 31st we observed presumably the same harrier carrying something into the reeds from the fields south of Heron Bay. We weren't exactly sure what it was in the talons but sometime later it flew back to the same spot with a stick and dropped down out of sight. On April 7th we saw two harriers in the area.

On April 15th I spent a bit more time catching up with this activity, observing from Heron Hide and saw two harriers around the Heron Bay phragmites. Stick carrying was seen again as were aerial displays including sky dancing, talon grappling, calling and "fake" food passes. One of the birds also showed hostility chasing a Buzzard from the area. These behaviours were also observed again on April 29th and well into May.

Further observations by Tim Sexton and Luke Nelson from Lax Hill pinpointed the possible site of a nest in the Field 16 Reedbed. Using the dates from observations made earlier in the season, trained ringers from the Rutland Water Ringing Group carefully entered the reedbed in an attempt to ring any chicks that might be present. They found an empty nest and that the adult birds had moved away from the area. A number of chick feathers were found in the nest which proved that breeding had taken place, but sadly the chicks had been predated at approximately three weeks old. It is thought that the exceptionalally low water levels had made the nest accessible to terrestrial predators.

Interestingly both of the adult birds appeared to be in immature plumage, both having creamy white crowns, although one bird, possibly a second calendar year male had partial light patches on the secondaries which would be grey in some adults and some flecking on the crown.

There is much variability in adult Marsh Harriers with some males having more adult female type plumages. Also it's not unknown for larger birds of prey such as these harriers to nest as young as two or three years old. Hopefully they'll return in 2023.

The pair about to engage in talon grappling above Heron Bay © Jeff Davies

The empty Marsh Harrier nest © LRWT

Winter Gull Roost

Black-headed Gull © LRWT

Tim Sexton

Rutland Water Nature Reserve has historically recorded high counts of gulls coming to roost on the Reservoir during the winter months. In the past, these counts have been ad-hoc or casual records. A national survey, the Winter Gull Roost Survey, was carried out at key sites across the UK both inland and at coastal locations. The survey was coordinated by the BTO and largely carried out by volunteers. The survey ran between 2003/04 and 2005/06 and was carried out here in January 2004. A totalof 33,501 gulls of five species were recorded during the count at Rutland Water, of which 21,000 were Black-headed Gull – the tenth overall highest count in the country for that species.

Rutland Water was found to be of international importance for our wintering Black-headed Gulls and of national importance for our wintering Common Gulls in the 2003/2004 winter survey. However the conservation designations for the site have no notifications for our wintering gulls as the average number of birds over a five-year period need to be used for the purposes of designating sites of importance. The threshold for national and international significance for Black-headed Gulls is currently 20,000 and the threshold for national importance for Common Gull is currently 7,000 (with the international threshold being 20,000).
As gulls are often missed on the WeBS counts, due to them leaving the roosts at first light, it was decided that a coordinated count should be carried out in mid-January each year. Following a standardised methodology (the recommendation for annual monitoring for Key Sites for wintering gulls from the BTO Winter Gull Roost Survey) it would allow for comparisons and trends to be made over a period of time and perhaps even get gull roosts recognised as a feature of the SSSI designation.

A team of volunteers and staff carried out the survey on the 11th January 2022. Counters were positioned at Burley Fishponds, Dickenson's Bay (North Arm 1), Whitwell (North Arm), The Dam (Main Water), Sailing Club (South Arm), Goldeneye Point (South Arm 1/3) and Lagoon 4. The count started at 3pm and finished after sunset (4:15pm) at around 4:45pm to allow for any 'stragglers' to return to the reservoir.

Results

BTO Species Codes:

BH	Black-headed Gull
CM	Common Gull
LB	Lesser Black-backed Gull
GB	Great Black-backed Gull
HG	Herring Gull
MU	Mediterranean Gull

Significant pre-roosts were recorded at Burley Reach (1,150 – 850 BH, 300 CG), Dickenson's Bay (750 BH) Brown's Island (12,000 – CG, 92 GB), Sailing Club (1,650 BH).

Birds left the pre-roosts between 3:55pm to 4:30pm and flew along either side of the peninsula towards the dam, joining birds which had come in from the west. A further 195 larger gulls (which were unidentified) came in to Lagoon 4 at dusk at around 4:20pm.

The majority of the birds roosted around the Limnological Tower on Main Water in two large rafts (one in line with Normanton Church and Whitwell Creek, the other on the Dam side of the tower) covering an area of approximately 60ha (see figure 5). The birds recorded on Lagoon 4 remained there for the duration of the count and were assumed to have roosted on the islands of the Lagoon.

The totals for each species are summarised below:

BH	40,000 (low estimate, potentially 50,000+)
CG	12,5000 (low estimate, potentially 20,000+)
LB	55
GB	118
HG	98
MU	1
UnID'd	195
Total	52,666 (low estimate)

An analysis of the main roost site area using GIS software (figure 6.1), with the assumption of there being just one gull per square metre of water's surface suggests that the counts are underestimated and that the overall total should be closer to 60/70,000 individuals. In any case the number of birds recorded on the 11th January far exceed that of any count previously taken place at Rutland Water for both Black-headed Gull and potentially Common Gull.

The previous peak counts from WeBS and casual counts are shown below:

BH	30,000	recorded on 11/10/2009
CG	20,000	recorded on 18/11/2012
LB	5,000	recorded on 29/08/2002
GB	800	recorded on 19/12/2010

A further count has been scheduled for 2023 and the use of a thermal image drone has been suggested in an to attempt to get a more accurate total of the birds in the main roost.

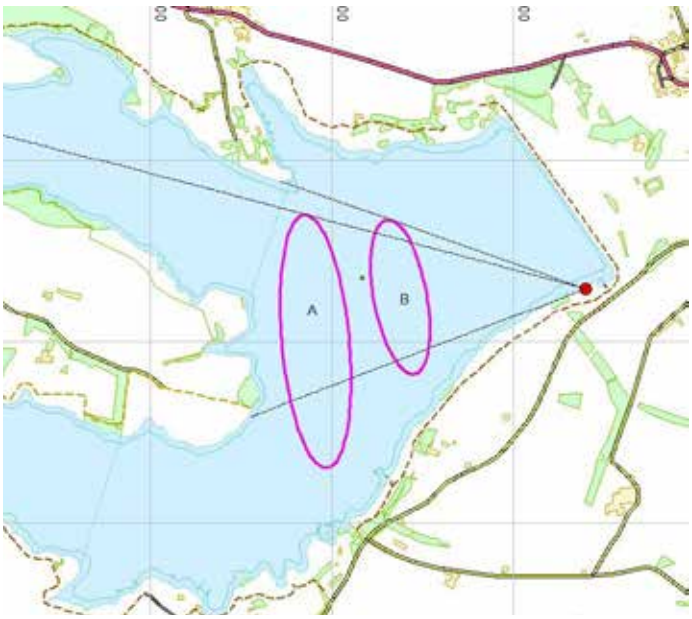


Figure 6.1 Approximate area of the main roost, with line of sight from the counter at the Dam Wall

Winter Water Rail Survey

Tim Sexton

In the spring of 2021 a survey to monitor breeding Water Rails at Rutland Water identified eight nesting pairs within six areas of the Reserve deemed to be suitable nesting habitat. These secretive relatives of the Coot and Moorhen are considered to be an uncommon winter bird and bird of passage, rarely breeding in Leicestershire and Rutland.

Throughout the year, numbers of Water Rails have been estimated for the purposes of recording in the Wetland Bird Survey (WeBS) due to difficulties in recording them through traditional means. In order to get a more accurate estimate, a playback survey method, similar to that used in the breeding Water Rail survey was adopted to carry out a winter count of Water Rails on the site.

As Water Rails have a tendency to skulk around in dense reedbed and waterside vegetation, the only reliable way to census them is through listening out for their characteristic vocalisations, known as sharming - a pig-like squeal which is delivered from deep within waterside vegetation. Surveys have shown that Water Rails readily respond to calls of rivals and neighbours during both breeding and non-breeding times of the year - and respond to immitation electronic 'rivals'. Therefore by using a playback method of surveying them, at reguar intervals along suitable habitat, an accurate number of birds can be counted based on the responses.

The winter survey took place on the 14th January 2022 and followed the route of the breeding survey, with playback points set every 100m along suitable habitat. At Lyndon, playback points were set at each hide as access to the water's edge there is restricted.

An MP3 recording of Water Rail sharming calls was played from a phone connected to an ANKER Bluetooth speaker, pointed in the direction of the reedbed. After two minutes, if a response had not been heard, the MP3 recording was played for a second time. If there was no response after the second call it was assumed a Water Rail was not pres;ent. Activity was recorded using the following codes: R - sharming in response to playback, S - unprovoked sharming, D - sharming duet, C - other calls and V - visual only.

In total 41 Water Rails were recorded across the six areas surveyed, almost double the largest previous count for a winter WeBS count (24) - which was based on an estimate. A repeat survey will be made in the late Autumn/Winter of 2023 to help better understand when the peak of winter migrant Water Rails arrive on the Reserve.

Breeding Bird Survey

Blackcap © Vaughn Matthews

Tim Sexton

The Breeding Bird Survey at Rutland Water has undergone many iterations in its history. Originally following the BTO's Common Bird Census methodology, which used complex symbology to identify breeding territories, the Breeding Bird Survey at Rutland was simplified in 2012 to record only the total number of singing birds and the total number of birds seen during the breeding season. Up to 10 visits were made in each of the areas covered between March and June. While it reduced the time needed to collate the results, the downside to this recording method was that it made analysis and interpretation of the data very difficult due to the difference in recording effort - in particular the number of surveys made during the survey period. It also did not record the locations of breeding territories and therefore the results couuld not be correlated with Reserve management or habitat structure and type. As such, it was decided that in 2022 a hybrid of the Common Bird Census and the BTO's more simplified Breeding Bird Survey (BBS) would be adopted. Requiring only six visits, and with a reduced number of behaviour codes, it would enable volunteers to map territories as well as get a more accurate count of the number of breeding pairs.

Maps were produced for each of the survey areas and each visit birds were recorded using the standard BTO letter codes along with a circle around the letters (to indicate a singing bird), a line underneath to indicate a calling bird and just a letter if the bird was only seen. Analysis of the data was carried out at the end of the season and if a bird was recorded in the same area in two or three of the visits (depending on species) it was considered a territory.

Unfortunately, a number of survey volunteers were unable to carry out counts in their traditional areas in 2022 due to ill health, so only 11 areas could be surveyed. These were; Armley Wood, Hambleton Wood, Lyndon, Field 16, Lax Hill, Barnsdale Wood, Cottage Wood, Fieldfare area, AWBC to Lagoon 6, Cherry Wood and Gibbet Gorse to Berrybut Spinneys.

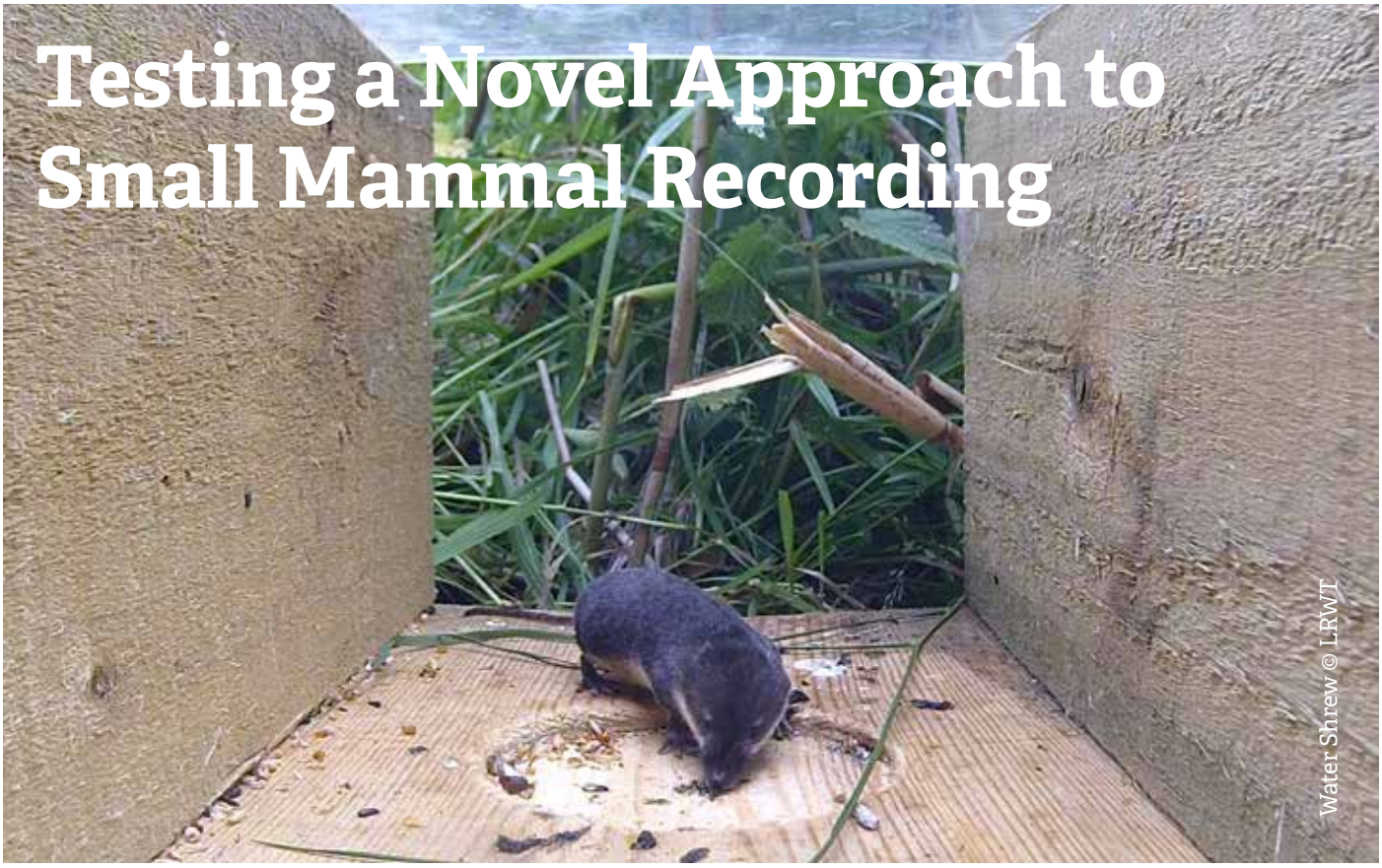
A total of 1,075 territories were counted of 37 species through the survey. This figure is not much different to the results from 2021 (which used the singing and seen methodology) where an estimated 1254 pairs were recorded over 14 areas of the Reserve.

The most common breeding species in 2022were Wren, Blackcap and Chiffchaff with 175, 148 and 103 pairs recorded respectively. In fact, the top six breeding species were identical to those in 2021. Nightingale were recorded at both Cherry Wood and Lax Hill in 2022. The Cherry Wood pair were confirmed as breeding succesfully through the CES ringing study - a female was caught early in the season carrying an egg and a recently fledged juvenile was caught towards the end of the study. Lyndon had the greatest number of breeding territories with 157 pairs of 24 species recorded. The full results from the areas surveyed can be seen in figure 7.1.

Rutland Water Breeding Bird Survey Results 2022												
Species/Area	Armley Wood	Hambleton	Lyndon	Field 16	Lax Hill	Barnsdale	Cottage Wood	Fieldfare	AWBC-L6	Cherry Wood	Gibbet to Berrybut	**Total**
Wren	10	20	23	16	19	21	27	4	15	10	10	**175**
Blackcap	14	18	15	13	25	13	16	5	9	14	6	**148**
Chiffchaff	3	6	14	15	17	19	7	4	10	6	2	**103**
Blue Tit	6	3	13	3	13	18	16	0	7	9	4	**92**
Blackbird	7	4	11	6	12	11	8	3	6	7	10	**85**
Robin	0	8	11	4	3	13	14	0	10	6	8	**77**
Rook	0	0	8	0	0	0	0	0	40	0	0	**48**
Garden Warbler	1	5	12	7	7	4	10	0	1	1	0	**48**
Willow Warbler	0	1	5	6	9	0	0	3	3	6	1	**34**
Great Tit	3	5	6	0	4	5	4	2	2	0	2	**33**
Chaffinch	3	2	6	1	3	2	4	0	4	0	2	**27**
Song Thrush	4	2	5	3	2	1	4	0	1	2	2	**26**
Sedge Warbler	0	0	5	5	1	0	0	6	3	6	0	**26**
Woodpigeon	4	3	2	0	4	0	3	0	0	2	4	**22**
Long-tailed Tit	0	6	2	0	1	1	4	1	2	3	2	**22**
Dunnock	0	0	5	1	0	0	3	1	7	0	2	**19**
Reed Warbler	0	0	0	2	0	0	0	0	0	8	0	**10**
Whitethroat	0	0	3	0	0	0	1	1	1	0	3	**9**
Reed Bunting	0	0	2	0	0	0	0	0	4	3	0	**9**
Stock Dove	3	1	0	0	3	1	0	0	0	0	0	**8**
Goldcrest	1	0	2	0	0	0	4	0	0	0	1	**8**
Goldfinch	0	0	1	0	0	0	1	0	5	0	0	**7**
Lesser Whitethroat	0	0	3	0	0	0	0	1	1	0	0	**5**
Cetti's Warbler	0	0	0	2	0	0	0	0	0	3	0	**5**
Great Spotted Woodpecker	1	0	1	0	0	1	1	0	0	0	0	**4**
Jackdaw	1	0	0	0	3	0	0	0	0	0	0	**4**
Treecreeper	1	2	0	0	0	0	1	0	0	0	0	**4**
Spotted Flycatcher	1	0	0	0	0	0	0	0	0	0	3	**4**
Pheasant	0	0	0	0	0	0	0	0	2	1	0	**3**
Bullfinch	0	0	1	1	0	0	0	0	0	0	0	**2**
Nightingale	0	0	0	0	1	0	0	0	0	1	0	**2**
Carrion Crow	0	0	0	0	0	0	0	0	1	0	0	**1**
Collared Dove	0	0	0	0	0	0	0	0	1	0	0	**1**
Cuckoo	0	0	0	1	0	0	0	0	0	0	0	**1**
Linnet	0	0	1	0	0	0	0	0	0	0	0	**1**
Magpie	0	0	0	0	1	0	0	0	0	0	0	**1**
Tawny Owl	0	1	0	0	0	0	0	0	0	0	0	**1**
Grasshopper Warbler	0	0	0	0	0	0	0	0	0	0	0	**0**
Marsh Tit	0	0	0	0	0	0	0	0	0	0	0	**0**
Mistle Thrush	0	0	0	0	0	0	0	0	0	0	0	**0**
Raven	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Breeding pairs	**63**	**87**	**157**	**86**	**128**	**110**	**128**	**31**	**135**	**88**	**62**	**1075**

Figure 7.1 Rutland Water Breeding Bird Survey results 2022

Testing a Novel Approach to Small Mammal Recording


Water Shrew © LRWT

Tim Sexton, Species and Recording Officer, looks at a novel approach for using trailcams to monitor small mammal populations.

The use of trailcams at Rutland Water Nature Reserve in recent years has vastly increased our understanding of the more secretive species which can be found here. Trailcams have enabled us to confirm the presence of Otters and Badgers across much of the site, helped monitor skulking bird species such as Water Rail, provided interesting projects for trainee reserve officers and also given us an insight into wildlife behaviours that would otherwise go unnoticed. As the price of trailcams has come down in recent years and the quality has vastly improved, the opportunities for their use has increased.

The use of trailcams for recording small mammals however is still somewhat limited as the fixed focus lens configuration is typically set up for larger mammals at distance (they were originally developed for use in the hunting industry). Also, the sensitivity of the PIR trigger mechanism is often insufficient at long range to pick up the movements of smaller animals. Experiments at Rutland Water, where trailcams have been focused on feeding stations designed to attract small mammals, have proved unsuccessful as they tend to attract more non-target animals such as pigeons and squirrels than a wide range of small mammals. As such, small mammal recording at Rutland has been limited to occasional field records, long-term Water Vole raft monitoring and live trapping using Longworth traps - which is time consuming, is more invasive than camera trapping and has welfare risks such as removing the animal from its environment for a period of time (particulalry if they have dependent young).

A study on a peat bog in the Forsinard National Nature Reserve in the Flow Country of northern Scotland, Littlewood et al (2021), trialed a novel approach to small mammal recording by using a Small Mammal Camera Trap Tunnel, along with a modified trailcam (fitted with a +4 close-up lens) to successfully capture footage of small mammals. The close-up lens meant that the camera could now focus on objects much nearer to the trailcam (similar to the effect of using reading glasses). The tunnel structure helped to prevent most non-target animals from taking the bait, while providing cover for the target species.

Following a recent small mammal recording training session at the Volunteer Training Centre, run by the Leicestershire and Rutland Mammal Group, it was decided to trial a similar style of Camera Trap Tunnel at Rutland Water to better understand the distribution of Water Shrews and other small mammals across the site.

A Small Mammal Camera Trap Tunnel was built (see figure 4.1), based on the design in Littlewood et al, measuring 615mm x 230mm x 190mm (20mm thick timber). A hinged compartment was built at the end of the tunnel to house the trailcam and a Perspex roof was included to allow extra light in to the camera during daytime operation. An Apeman H60 (24mp) trailcam was used to capture footage, with a 58mm HAMA 4+ Close-up filter attached with Blu-Tac®.

In addition, a shallow 'bowl' was routed in to the base of the tunnel at the measured distance for optimum focus, in which the bait will be placed.

The tunnel was positioned at two locations across the Reserve (see figure 3), Snipe Hide Channel on Wet Meadow (SK 88154 06706) and AWBC Reedbed (SK 88052 07273) for a period of one week at each site. The tunnels were baited with a handful of premium bird seed and half as much of casters (fly pupa), which were obtained from a local fishing tackle shop. The bait was placed approximately half way along the tunnel (approximately 20cm from the trailcam) and was replenished every couple of days as required.

Settings on the trailcam were altered so that it would take one image with an interval of 30 seconds before the next image (to reduce the total number of images taken of the same individual). The IR settings were reduced to low (to avoid 'white-out'). In Littlewood et al (2021), a piece of paper and brown tape was put over the IR LEDs to reduce the intensity further at close range, tests with the camera showed this was not necessary in our set up. Finally, as there was less chance of false activations being caused by moving vegetation, the PIR sensitivity was set to high to ensure each target was captured.

The footage was downloaded from the camera after one week and the species were identified. In some cases, a number of different photos of each animal had to be studied to obtain an accurate identification. Where identification could not be confirmed to species, the mammal was recorded as vole sp. or shrew sp.

Results

At Snipe Hide channel the footage was dominated by Brown Rats until the seed and casters were exhausted. Following this, a number of Wood Mice and Pygmy Shrew were recorded feeding on the tailings. An Otter investigated the entrance to the tunnel at one point, but did not enter the tunnel.

At AWBC reedbed, Wood Mice dominated the footage and were joined to a lesser extent by Bank Voles, Common Shrew and even Water Shrew. A Badger was seen near to the entrance of the tunnel in the reedbed, but like the otter previously, it did not attempt to take any food from the tunnel. Images of each species are shown in figure 8.2.

The majority of the images (1500+) were captured at night with only a couple of daytime (early morning) activations. The footage provided an interesting insight in to behaviours and there were a number of observations made during the sessions, with Wood Mice comfortably sharing the tunnel when feeding and voles and shrews feeding on a one in-one out basis. The time spent in the tunnel differed per species with Wood Mice and Brown Rats stopping to feeding for periods of time and voles and shrews going in, taking seed, and leaving again quickly. Apart from the Otter and Badger intrusion, no larger mammals (such as Grey Squirrels) or birds were recorded in the tunnel itself.

Systematic deployment of a number of camera trap tunnels is planned for 2023 across the Nature Reserve. This will be monitored by a team of volunteers who aim to develop a small mammal distribution map.

Figure 8.1 Small Mammal Camera Trap Tunnel © LRWT

a) Wood Mouse

b) Brown Rat

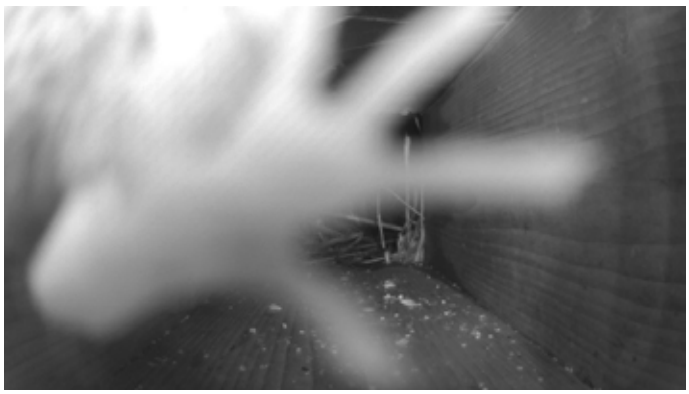
c) Water Shrew

d) Common Shrew

e) Bank Vole

f) Otter

g) Pygmy Shrew



f) Camera shy Wood Mouse

Figure 8.2 Selection of species photographed in the small mammal camera trap tunnel © LRWT

References

Littlewood N A. Hancock M H. Newey S. Shackleford G. Toney R. (2021). Use of a novel camera trapping approach to measure small mammal responses to peatland restoration. European Journal of Wildlife Research (2021) 67: 12

Otters on ice © Tony Marshall

A Record year for Otter Sightings

Tim Sexton

It has been a record year for otter sightings at Rutland Water with daytime reports by visitors to the Reserve coming in on an almost weekly basis. A total of 39 separate sightings was recorded throughout the year. Eight individuals was the most recorded at any one time, with five recorded in Lagoon 8 simultaneously with three recorded in South Arm 3 (SA3) - on the 11th September. The vast majority of daytime sightings come from Lagoons 2 and 3 along with SA3. Trailcamera footage has also picked up individuals at Smew Hide, Burley Fish Ponds (BFP) and Wet Meadow. A summary of sightings is shown in table 9.1

Along with physical sightings of otters, latrines with large numbers of spraints have been found in the following locations; along the bund separating Lagoon 2 from SA3, Lagoon 3 boardwalk, Lagoon 3 pollards and on the bund separating Lagoon 3 from SA3.

There have been regular records of Otter at Rutland Water since 2011 (with just a handful of records between 2001 and 2011 beforehand). However, 2022 has seen the highest number of Otters reported in recent memory.

Otter at Burly Fish Ponds © Tony Marshall

Otter Sightings Rutland Water 2022			
Date	**Area**	**Location**	**Total**
07/01/2022	Lagoon 2	Lapwing Hide	3
28/01/2022	Lagoon 3	Shoveler Hide	4
13/02/2022	Lagoon 2	Smew Hide	4
23/02/2022	SA3	Lapwing Hide	1
23/02/2022	Lagoon 3	Buzzard Hide	2
06/03/2022	Lagoon 2	Smew Hide	4
09/03/2022	Lagoon 3	Buzzard Hide	3
02/04/2022	Lagoon 2	Smew Hide	3
02/04/2022	Lagoon 3	Buzzard Hide	2
24/05/2022	Lagoon 2	Lapwing Hide	1
07/06/2022	Lagoon 2	Smew Hide	1
15/06/2022	SA3	Fieldfare Hide	1
21/06/2022	SA3	Lapwing Hide	1
23/06/2022	SA3	Fieldfare Hide	1
26/06/2022	SA3	Crake Hide	1
22/07/2022	Lagoon 3	Buzzard Hide	1
27/07/2022	Lagoon 3	Shoveler Hide	1
09/09/2022	Lagoon 2	Smew Hide	3
11/09/2022	SA3	Lapwing Hide	3
11/09/2022	Lagoon 8	Kingfisher Hide	5
18/09/2022	Lagoon 1	AWBC	4
18/09/2022	Lagoon 3	Buzzard Hide	1
22/09/2022	SA2	Heron Hide	1
22/09/2022	Lagoon 3	Buzzard Hide	1
03/10/2022	Lagoon 2	Smew Hide	1
11/10/2022	Lagoon 1	AWBC	1
11/10/2022	Lagoon 3	Buzzard Hide	1
15/10/2022	SA3	Lapwing Hide	1
16/10/2022	SA2	Tufted Duck Hide	2
22/10/2022	Lagoon 4	Plover Hide	1
26/10/2022	Lagoon 2	Smew Hide	1
29/10/2022	Lagoon 3	Buzzard Hide	1
31/10/2022	Lagoon 3	Buzzard Hide	3
02/11/2022	Lagoon 2	Smew Hide	1
11/11/2022	SA2	Wigeon Hide	1
12/11/2022	Lagoon 3	Shoveler Hide	4
19/11/2022	Lagoon 3	Shoveler Hide	4
26/11/2022	SA3	Gadwall Hide	1
13/12/2022	Lagoon 2	Smew Hide	3
13/12/2022	BFP	Seen on bund	3

Table 9.1 Otters reported to the Birdwatching Centre in 2022

Nathusius' Pipistrelle Project

Nathusius' Pipistrelle © LRWT

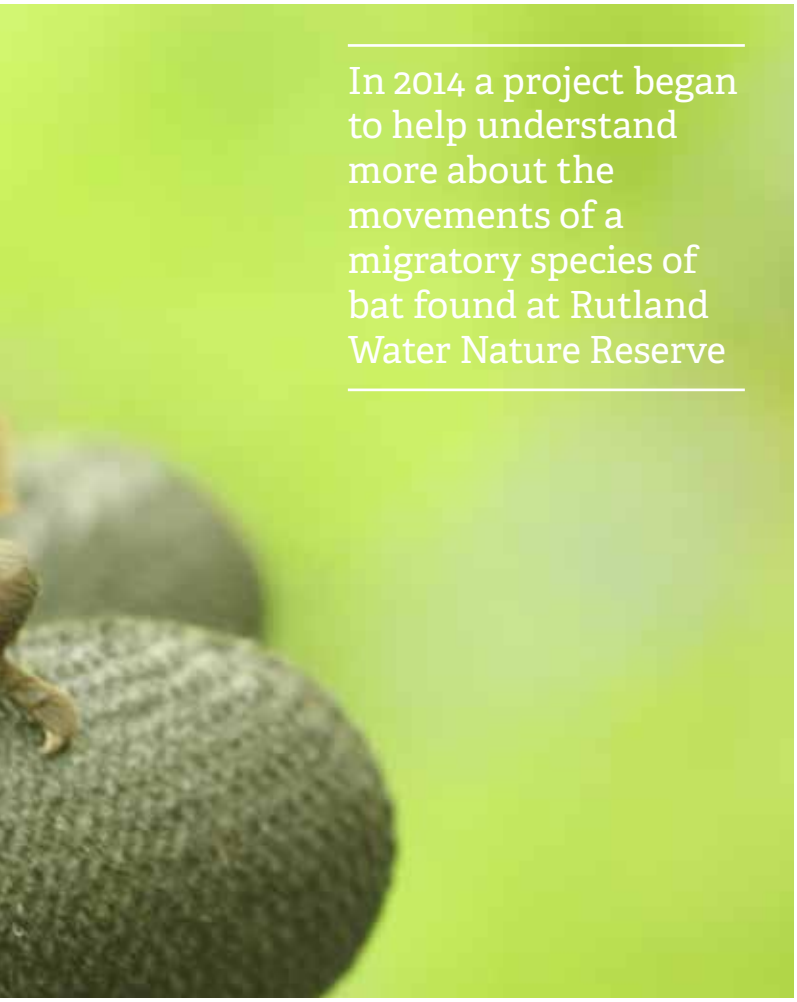
Nathusius' Pipistrelle © LRWT

Tom Bennett

The Nathusius' Pipistrelle Project began in 2014 at Rutland Water. Its aims were to understand more about the movements of a rare migratory species of bat that makes its home, for at least part of the year, at Rutland Water.

The Nathusius' Pipistrelle is the largest of the three resident pipistrelles in the UK. It is similar in appearance to the commonly found Common and Soprano Pipistrelles but does have some apparent differing features such as longer fur on its back, sometimes giving a shaggy appearance. This bat is rare in the UK, though records have increased in recent years. It is a migratory species, and most are encountered in autumn, although some do remain all year and breed in the UK. This species was first recorded in Great Britain in the Shetland Islands in 1940 and first recorded at Rutland Water as recently as 2014.

Following the discovery here, Rutland Water became one of the pilot sites for the National Nathusius' Pipistrelle Project - launched by the Bat Conservation Trust, with a grant from the People's Trust for Endangered Species. Harp trap surveys at Rutland started in September 2014 and have been carried out every year since with a break between 2019 and 2021 due to the COVID-19 pandemic and following guidance from the IUCN: International Union for Conservation of Nature.



In 2014 a project began to help understand more about the movements of a migratory species of bat found at Rutland Water Nature Reserve

Nathusius' Pipistrelles are lured to specially designed 'harp traps' by playing social calls of other bats. They are then carefully extracted by trained volunteers who take measurements and ring them. Nathusius' Pipistrelles are fitted with a small, lightweight aluminum ring with a unique number which allows the bats to be identified if they are found in the future. This method has enabled us to discover some of the impressive journeys made by these small animals that weigh as little as 6g. The longest recorded journey to date from the UK was in August 2021 when a Nathusius' Pipistrelle ringed in Greater London was found in Russia, 2,018km away.

The preferred habitat of Nathusius' Pipistrelles consists of deciduous woodlands and park landscapes, often near large water bodies and watercourses. Their prey consists exclusively of flying insects, mainly water-borne non-biting midges but also mosquitoes and black flies and to a lesser extent caddis flies, aphids and other small insects.

Their roosts range from bark crevices, tree holes, bat boxes (where a number have been recorded at Rutland Water) and rock crevices.

They can be separated from the two common species of pipistrelle by the reddish-brown fur, occasionally with frosted tips on the belly. The ears, membranes and face are usually very dark. Other important biometric featres include:

- 5th digit length divided by forearm length is usually greater than 1.25
- Male genitals are covered in white hairs
- Wing veination usually comprises of a distinctive bar dividing the cell between the 5th finger and elbow
- Dentition normally shows the 1st incisor has two points.
- Head & body length: 46mm - 55mm
- Forearm length: 32mm - 38mm
- Wingspan: 228mm - 250mm
- Weight: 6g – 16g

To date there have been 70 Nathusius' Pipistrelles caught and ringed at Rutland Water (62 males and 8 females). Some of these bats have been subsequently found using bat boxes across the reserve. In all, 13 bats have been recaptured after being ringed which has shown us movement across the site, but none have been recaptured elsewhere. It is hoped that the installation of the MOTUS automated radio telemetry station at the VTC will help add to our knowledge of the movements of Nathusius' Pipistrelle bats as time goes by.

A number of trapping sessions were undertaken in 2022 along with box checks. A summary of activity is shown below:

6 May, Whitwell Watersports area, RW, (SK923084) harp trapping and mist netting (evening): 21 Soprano Pipistrelles, two Common Pipistrelle, one Daubenton's.
7 May, Barnsdale Wood, bat box checks (day): three male Nathusius' Pipistrelles were ringed; 82 Soprano Pipistrelles were also recorded.
7 May, Berrybut Spinney (SK908058) harp trapping (evening): two male Nathusius' Pipistrelle; one Soprano and one Common Pipistrelle; 11 Daubenton's.
3 September, Barnsdale Wood bat box checks (day): two male Nathusius' and 68 Soprano Pipistrelles.
3 September, Lyndon Nature Reserve, Manton Bay, evening harp trapping and mist netting: two Nathusius' Pipistrelles ringed; eight Soprano and one Common Pipistrelle, one Daubenton's Bat and two Whiskered Bats.
17 September, Lax Hill daytime bat box checks: four male Nathusius' ringed; two Soprano Pipistrelles recorded. Lax Hill evening trapping: one Nathusius' Pipistrelles ringed; four Soprano Pipistrelles and eight Whiskered Bats also recorded.
7 October, Legacy Wood (Lyndon), evening trapping: eight Soprano Pipistrelles, one Common Pipistrelle and one Daubenton's Bat recorded but none ringed.

The trapping of eight Whiskered Bat at Lax Hill was a very unusual record for Rutland. Whilst this species is thought to be common nationally, currently no maternity roosts are known in our area, and they are rarely found grounded in VC55 (Leicestershire and Rutland). This record suggests, however, that there is a roost nearby, possibly even in one of the old trees on Lax Hill.

Great Diving Beetle (*Dytiscus marginalis*) © LRWT

Water Quality Monitoring

Tim Sexton

In 2021 a pilot study was carried out, with the help of the survey and monitoring volunteers, with the aims of developing a system for measuring the water quality of the eight lagoons at Rutland Water Nature Reserve, using aquatic invertebrates as biological indicators. It is hoped that regular monitoring of each of the lagoons can provide the basis of an 'early warning system' for any significant changes in water quality which could threaten the favourable status of the SSSI - i.e. reduce the number of overwintering waterfowl. The sampling method used for the study was based on the Biological Monitoring Working Party (BMWP) score system, which is frequently used in the UK to monitor water quality in both flowing streams and rivers and still freshwater bodies.

The BMWP score system uses families of aquatic macroinvertebrates as indicators of water quality. Different families are scored between 1 and 10 based on their tolerance to low oxygen levels, and therefore pollution in the water. The most sensitive family groups receive the highest scores and the most tolerant family groups receive the lowest scores. The scores for each family are added together from each sample point and an overall BMWP score is obtained, which gives an indication of the biological condition of the water body.

An advantage of using BMWP over chemical monitoring is that it can measure the effect of pollution over a period of time. In addition, BMWP can detect short discharges of pollution, which is usually missed by chemical sampling.

The standard method of collecting specimens for BMWP in still waters consists of a 3-minute pond net sweep with an additional 1-minute visual search of the water's surface to ensure that the maximum number of taxa have been found. An equal length of time is spent in each mesohabitat - i.e. one minute in each of reedbed, open water and macrophyte cover.

The macroinvertebrates from each sample are then sorted on the bankside in white trays and recorded to family level, using a hand lens or field microscope for any tricky taxa. A small sample of any beetle (coleoptera) families and true bug (hemiptera) families were also taken for identification to species level to help build up a baseline of aquatic invertebrate species for the Reserve.

During the pilot study in 2021, two sample locations were surveyed per lagoon, with two samples taken per location (to mitigate for any sampling errors). Each of the eight lagoons were sampled with the exception of Lagoon One - which was avoided due to disturbance. The results showed that Lagoon 3, which receives water from the Oakham Water Recyling Centre (WRC), had the lowest BMWP score of the seven lagoons sampled, scoring only 39 (polluted or impacted). The highest scoring lagoon was Lagoon 8 which scored 110 (unpoluted, unimpacted). Full interpretation of BMWP scores can be found in table 10.1.

BMWP score	Category	Interpretation
0-10	Very Poor	Heavily polluted
11-40	Poor	Polluted or impacted
41-70	Moderate	Moderately impacted
71-100	Good	Clean but slightly impacted
>100	Very good	Unpolluted, unimpacted

Table 10.1 Interpretation of BMWP scores

One of the limitations of BMWP in larger water bodies is the number of samples which need to be taken to ensure a true representation of the water body is achieved - you could by chance select a particularly bad area of the water body, or a particularly good area. As a result it was decided that in 2022 additional sample locations would be surveyed around Lagoon 3 to back up the results.

A total of 24 samples were taken from seven sample locations throughout the year, taking into consideration the different mesohabitats found around the Lagoon - including; reedbed and other emergent macrophytes, silt channels, deeper water areas, shallow water, submerged macrophyte dominated zones and areas with woody debris or decaying organic matter. Some areas of the Lagoon were inaccessible from the bankside or too dangerous to sample from, so could not be covered (see figure 10.2 for sample locations). Surveys were undertaken between the end of April and September and repeat visits to similar areas of the Lagoon were avoided to allow for any seasonal variation in temperature or emergence times of macroinvertebrates.

Figure 10.2 Sample locations around Lagoon 3 in 2022

Brief habitat information was noted for each sample location and submerged macrophytes were also identified to species. These included; Curled Pondweed (Potamogeton crispus), Fennel Pondweed (Potamogeton pectinatus), Rigid Hornwort (Ceratophyllum demersum), Canadian Pondweed (Elodea canadensis), Nuttall's Pondweed (Elodea nuttallii) and New Zealand Pygmyweed (Crassula helmsii).

Total BMWP scores ranged from a low of 17 (polluted or impacted) to a high of 88 (clean but slightly impacted). More than half of the sample points (13) scored below 40 (polluted or impacted). These were mostly located on the open water side of reedbeds or at the lagoon edge. All of the sample points scoring above 71 (clean but slightly impacted) were in chanels behind reedbeds, where there was an abundance of submerged macrophytes - suggesting the reedbed is providing a buffer between the poor quality water in the main lagoon and the channels. Results of the samples can be seen in figure 10.3

Figure 10.3 BMWP sample results. Red - polluted or impacted, orange - moderately impacted, yellow - clean but slightly impacted

The results from 2022 show that compared to other lagoons on the Reserve, Lagoon 3 contiues to have a low overall BMWP score. This indicates that the water quality is not as good as the other lagoons. The impact this could have on the favourable status of the SSSI is not yet known and is subject to further investigation.

A full-time funded research project through Loughborough University is planned to start in 2023, which will focus on Lagoon 3, comparing it to other lagoons and the main reservoir. The project will study in greater depth the difference in water chemistry, phytoplankton, zooplankton and aquatic invertebrates across the site. Silt cores will also be taken in order to reconstruct historic water conditions over time.

A volunteer taking a water sample from Lagoon 3 © LRWT

Dragonfly Survey Report

Hairy Drogonfly © Tony Clarke

Tony Clarke

Dragonflies belong to an order of insects called Odonata. Odonata are divided into two groups (or sub-orders) comprising Anisoptera (dragonflies) and Zygoptera (damselflies). Dragonflies are the larger and more robust looking insects and are 'fast fliers'. Damselflies are smaller and more flimsy looking insects with a slow 'fluttery flight'. The name 'dragonfly' is commonly used to describe both dragonflies and damselflies – a convention adopted in this survey report.

Dragonflies spend a considerable amount of their lives under water as larvae, typically up to 2 years but in some species it is longer. They emerge from Spring onwards, usually overnight or early in the morning. Timing of the emergence of larvae is temperature dependent and varies among species. All emerging dragonflies spend a few days 'maturing' in what is known as known as the teneral stage. Once mature, they lead short but very active lives. They are frequently seen near water, (ponds, streams and lagoons) which they need for breeding. They are also seen away from water and can be found almost anywhere on the reserve. Their short lives include feeding, which is mostly done on the wing; mating, which involves the males and females joining together in a so called 'mating wheel' and egg laying or ovipositing. Most dragonflies only live for a few days.

Historically there have been few if any formal studies of dragonflies at Rutland Water Nature Reserve. Trust staff, along with many volunteers and visitors are knowledgeable about dragonflies and sightings are often recorded at the visitor centres throughout the year but no systematic recording of dragonflies has been done.

A survey protocol was designed by the Species and Recording Officer, Tim Sexton, to monitor Odonata species in a more systematic way at Rutland Water Nature Reserve, so that the data could be comparable in future years. It was based on the 'point count' survey guidance developed by the British Dragonfly Society (Annex 2) It was designed to collect data on species richness, abundance and evidence of breeding activity. A series of maps was created, including Lyndon, showing the locations of 31 ponds that might hold populations of dragonflies.

Monthly visits were made to each pond by volunteer Tony Clarke between May and October 2022. Timing of the visits was influenced by the weather (see below) and the availability of the surveyor. Recording visits were made on the following days:
19th and 31st May 2022, 12th and 15th June 2022, 30th July 2022, 27th and 28th August 2022, 14th and 17th September 2022 and 29th October 2022.

Ponds and ditches within the Wet Meadow area of the reserve were not surveyed due to potential disturbance to breeding birds.

Counts were made on the south facing (north) side of each pond wherever accessible. Counts were timed at 5 minutes. At large ponds, individuals were counted 2m inland and 5m into the water. At small ponds, it was possible to count species covering the whole pond and pond-side vegetation. For each species encountered, counts were made of the number of individual adults observed. Mating pairs were counted as two individuals and, individuals (or 'in –tandem' pairs) seen ovipositing were counted as singles or pairs respectively. A system of 'counting blocks' was used to aid recording where large numbers of dragonflies were present

Codes used in the recording system were as follows: A=1, B=2-5, C=6-20, D=21-100, E=101-500, F=500+

In addition to the specific 'pond counts', further information on the presence of dragonflies on the reserve was obtained as a result of a number of 'roving visits'. These were observations made during travel between ponds on survey visits and separate visits to look for both early and late flying dragonflies and species that might only be on the wider reserve and lagoons. e.g. Small Red-eyed Damselfly on lagoon 7.

Small Red-eyed Damselfly © Tony Clarke

As air temperature is an important factor in dragonfly recording, surveys did not take place when the temperature was above 30°C or below 17°C in the shade (15°C if the weather was sunny and calm). Surveys were not made if it was raining or if the wind strength was greater than 18mph (force 4 on the Beaufort scale)

On days when recording was undertaken, a pragmatic approach was taken to ensure recording was done when the sun was shining; or when the best possible conditions for dragonfly activity were available.

To allow for any changes in recorder effort in the future (i.e. the number of visits made during the recording period) and to allow for the difference in peak emergence times of species throughout the recording period, the species maxima are used for comparative analysis. The results of which are shown in table 11.1.

The survey indicates that two ponds at Cherry Wood (5 and 6) have the highest abundance of both individuals and numbers of species recorded on the reserve (eleven and thirteen species respectively). The Education Pond (14) outside the AWBC recorded the joint-third highest number of species (eight species). The ponds in Field 16 (21 and 22) are also good dragonfly ponds in terms of species recorded (with six and eight species respectively). The pond outside the entrance to the Lyndon Visitor Centre (28) recorded the highest number of Large Red Damselflies on the Reserve.

Ephemeral ponds, such as those along the Egleton and other meadows (which dried up for a period in the summer) or which are less established had the least number of species. Ponds 30 and 31 at Lyndon showed consistent nil returns.

Species Maxima Count per Location																															
Species/Location Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Azure Damselfly	B		B	C	C	D		B			C		B	C		C					C	C		B							
Banded Demoiselle																															
Willow Emerald			B	B	A	C								B		B						C									
Variable Damselfly																															
Common Blue Damselfly	C		C	C	D	D	C	B			B			C		C			B		C	C						C		
Red-eyed Damselfly																	B							B							
Small Red-eyed Damselfly																															
Blue-tailed Damselfly			C	D	C	C	C						A	B		B			A					B							
Emerald Damselfly					B	C										B															
White-legged Damselfly																															
Large Red Damselfly					B									A													C	A			
Southern Hawker					A	A							A	B			A	A	A			A									
Brown Hawker				A	A	A																A									
Common Hawker																															
Migrant Hawker	B				B	A	A										A	A	A		B	B						B			
Emperor Dragonfly						A	A												A												
Hairy Dragonfly			A			A					A										A	A									
Broad-bodied Chaser																													A		
Four-spotted Chaser			C	C	C	B										B	A				B										
Black-tailed Skimmer	A						B																								
Ruddy Darter	B		B	B	C	C					A			B					A		B	B									
Common Darter	B					C								B		B											A				
Total Species	**6**		**7**	**7**	**11**	**13**	**5**	**2**			**4**		**3**	**8**		**7**	**4**	**2**	**6**		**6**	**8**		**3**				**3**	**3**	**0**	**0**

Table 11.1 Species Maxima Count per Location. Key: A=1, B=2-5, C=6-20, D=21-100, E=101-500, F=500+

Roving Records
Dragonflies are strong fliers and can often be recorded flying well away from water, typically over grassland, scrub and wildflower meadows, where there is an abundance of invertebrate prey. As a consequence, the additional information from 'roving records' outside of the survey parameters helps provide a fuller picture of the presence of dragonflies across the Reserve in 2022.

In April 2022, for example there were several teneral Common Blue Damselflies in evidence in the vegetation on the paths and rides.

By May and June, Red-eyed Damselflies were present on the marginal vegetation on Lagoon 5. They were visible from 360 Degree and Shelduck Hides. Hairy Dragonflies became visible on the paths running along the north side of the Wet Meadow and good numbers of male and female teneral Black-tailed Skimmers were evident on paths around the reserve, especially on warm sunny days. Damselfly numbers were building up, with Common Blue, Blue-tailed, Azure and Red-eyed Damselflies visible on vegetation. Damselflies in the 'mating wheel' were also starting to appear along some of the paths. Emperor Dragonflies were visible flying around the reserve and a pair of mating Black-tailed Skimmers was on the path between Fran's Pond and Snipe Hide.

July continued the build- up of larger dragonflies around the reserve, with mostly male Emperor, Brown Hawker and Southern Hawker dragonflies frequently seen in-flight. On paths increasing numbers of Black-tailed Skimmers were evident and Ruddy Darters were seen hunting away from water. Several of the smaller ponds were now drying up due to the heat.

By August, the three larger dragonflies – Emperor, Southern and Brown Hawkers were commonly visible around the reserve with females of all three species also visible. The first teneral Migrant Hawkers were visible from paths and rides. Species of 'blue' damselflies were common on vegetation along the paths, with Common Darter numbers starting to build.

Probably the most significant dragonfly event in August was the increasing numbers of Willow Emerald damselflies on the vegetation around the reserve.

The prolonged period of drought through late summer meant that ponds holding any significant level of water were now becoming fewer and fewer.

In September the most commonly encountered hawker dragonfly that was spotted on walks around the reserve was the Migrant Hawker. Common Darters slowly started to be more frequent than the Ruddy. Ageing Black-tailed Skimmers were still on the wing including a mating pair. The Willow Emerald appeared to be the dominant damselfly by the end of the month.

By October dragonfly numbers had fallen considerably around the reserve, with most sightings being limited to Common Darter, Migrant Hawker and Willow Emerald. Sightings of all three of these species were made in early November with Common Darter being seen to the end of the month.

A summary of flight periods of dragonfly species seen at Rutland Water is shown in table 8.2.

Species/Month	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov
Common Blue Damselfly								
Azure Damselfly								
Blue-tailed Damselfly								
Large Red Damselfly								
Red-eyed Damselfly								
Hairy Dragonfly								
Four-spotted Chaser								
Broad-bodied Chaser								
Black-tailed Skimmer								
Emperor Dragonfly								
Emerald Damselfly								
Brown Hawker								
Southern Hawker								
Ruddy Darter								
Willow Emerald Damselfly								
Common Darter								
Migrant Hawker								

Table 11.2 Species emergence times and flight periods at Rutland Water

Common Tubic (*Alabonia geofrella*) © LRWT

Moth Recording

2022 Summary (Tim Sexton)

A total of 14,070 moths of 469 species was recorded in 2022 across three locations, along with 'roving records' collected throughout the year. This figure surpasses the 443 species recorded in 2021. 21 new species were added to the Reserve's Moth List, including three macro moth species and 16 micro moth species (see table 12.1). This brings the total number of species of moths recorded at Rutland Water to date up to 748 (336 Micro, 412 Macro).

ABH	B&F	Vernacular	Taxon
7.007	149	Early Long-horn	*Adela cuprella*
12.017	217	White-speckled Clothes Moth	*Nemapogon koenigi*
15.004	282	Pale Red Slender	*Caloptilia elongella*
15.017	296	Little Slender	*Calybites phasianipennella*
15.022	310	Garden Apple Slender	*Callisto denticulella*
17.003	453	Honeysuckle Moth	*Ypsolopha dentella*
28.042	652	Common Tubic	*Alabonia geoffrella*
29.002	664	November Tubic	*Diurnea lipsiella*
49.113	952	Orange Conch	*Commophila aeneana*
32.009	691	Small Purle Flat-body	*Agonopterix purpurea*
35.118	814	Beet Moth	*Scrobipalpa ocellatella*
35.107	859	Humped Groundling	*Psoricoptera gibbosella*
39.003	904	Yellow-headed Cosmet	*Spuleria flavicaput*
49.187	1098	Downland Marble	*Endothenia oblongana*
49.371	1239	Fruitlet Mining Tortrix	*Pammene rhediella*
62.065	1474	False Cacao Moth	*Ephestia woodiella*
70.012	1711	Treble Brown Spot	*Idaea trigeminata*
70.09	1755	Chevron	*Eulithis testata*
70.236	1915	September Thorn	*Ennomos erosaria*
73.074	2403	Bordered Straw	*Heliothis peltigera*

Table 12.1 New species to the Reserve in 2022

New Micro Moths

Of the new micro moths recorded in 2022, *Adela cuprella* (Early Long-horn) was perhaps the best find of the year, as it was also the first to be recorded in VC55. This day-flying species is associated with willows. Males fly above the tree canopy in spring and the females lay their eggs on the catkins from March onwards. Needless to say a special sweep net had to be constructed, with a four metre pole attached, in order to catch one above the willows near Shoveler Hide. It was subsequently confirmed after numerous attempts to catch it. There are less than 100 records of this species in the UK according to the NBN Gateway.

Adela cuprella (Early-long Horn) © LRWT

Nemapogon koenigi (White-speckled Clothes Moth) was only the second record for VC55. The larvae of this Nationally Notable species feed on fungi and dead and decaying wood. The adults need to be confirmed with microscopic examination on account of their similarity to Nemapogon cloacella (Cork Moth). Likewise, there are relatively few records of Commophila aeneana (Orange Conch) in VC55 - only three other records. This species has a southern distribution and it is associated with ragworts. It was designated as Nationally Notable B in the 2011 Status of Microlepidoptera in the UK. *Alabonia geofrella* (Common Tubic), a far from common species, was only the third record for VC55 when one was netted in the daytime on the Lax Hill perimeter walk. A beautifully marked species that proves micro moths are far from boring!

Orange Conch (*Commophila aeneana)* ©LRWT

Mega Moth Night

Following on from the success of the Mega Moth Night in 2021 a follow-up event was held in 2022, this time focussing on the Lyndon Nature Reserve. On the 20th August, 18 volunteers helped to operate 25 moth traps and monitor tree trunks that had been treated with a sugaring solution at various locations between Berrybut Spinney (at the eastern limit of the Reserve management boundary) and Waderscrape Hide (near Manton Bay). Traps were also run on Lax Hill and in the Lagoon 3 Reedbed. Although it was an unseasonably chilly night, a total of 3081 moths of 158 species was caught, identified and released during the event. Of these, nine species were new to the Reserve's Moth List.

The later time of year meant plenty of migrant species were recorded including; the Rusty-dot Pearl, Tree-lichen beauty, bordered straw, and dark sword-grass. Eight species of wainscots and many other nationally scarce wetland species of moth were recorded from traps set at the Lagoon 3 reedbed, making for a very satisfying final species list.

The total number of individuals far outnumbered the total caught in July 2021 (2065 moths), but the overall number of species was lower, which could be expected for the time of the year (184 in 2021). It is hoped that this event can be repeated again in 2023.

New Trap Location at Lax Hill

A new static trap location was set up at Lax Hill (near to the pumping station - which provides power to the trap). The trap is built to the same specification as the Lagoon 3 250mv skinner trap, but uses two 30w actinic tubes to save power. It is hoped that the location, consisting of very different habitat to the other trap sites across the site will provide additional records for the Reserve's species list. A small number of sessions were run from this trap in the summer of 2022, which were mostly maintained by staff.

It is hoped that a small group of volunteers can take over the operation of this trap in the future and run more sessions to enable comparisons to be made over time.

A total of 447 moths of 101 species was recorded at Lax Hill. Highlights include; Tree-lichen Beauty, formerly a rare migrant in Leicestershire and Rutland where it was first recorded in 2018, it now seems to be well established at Rutland Water with an increasing number of records. Also Ghost Moth, a declining species in VC55 - Lax Hill being the only site on the Reserve where this species was encountered in 2022.

60w Actinic Trap at Lax Hill ©LRWT

Lagoon 3 Reedbed Moth Trap
Ron Follows

Following a mild period at the end of March, April remained cool and although May had some dry and mild nights it was June before the conditions really favoured moth trapping.

The heat wave that followed through July saw some of the best trapping results we have had both in numbers of moths caught and species recorded. Several sessions with 100 species of macro moth and 1000 plus individuals occurred both at Rutland Water Nature Reserve and other locations locally.

Moth trapping continued as in previous years at Lagoon 3 reedbed with seven traps operated from dusk through to dawn approx. every couple of weeks. Conditions remained good well into August with migrant moths starting to appear. This continued into September and October with highlights including Vestal, Gem, Bordered Straw, Delicate and Scarce Bordered Straw all putting in an appearance.
As in previous years all traps used were 240v mains powered, consisting of one 250w MV Skinner, two 125w MV Robinson, three 125w MV 'Box' plus a '20w' Actinic 'Box' traps.

14 sessions were undertaken in 2022 giving a total of '98' trap nights'. Overall 376 (114 micros & 262 macros) species were recorded during the year including 8 which were new for the reedbed, bringing this location species total to 621 (259 micro & 362 macros).

Tree-lichen Beauty ©LRWT

Lyndon Centre Moth Trap
Paul Bennett

As at the end of 2022 the figures stand at 291 macro moths and 135 micro moths for Lyndon. More moth species were added to the total recorded around the visitor centre area since 2012, when recording there commenced.

Fourteen traps were run during the year from the meadow with these attracting 158 macro moth species and 40 micro moth species. 88 macros and 19 micros were recorded from the ten traps that were run from the adjoining wooded area. The two traps used were a mains operated 125watt mercury vapour trap in the meadow and a 20watt mercury vapour twin battery-operated trap set out on the woodland path.

Red Chestnut, Pale Pinion, Green Silver-lines, Oak Hook-tip and Dark Chestnut were new macro records for the site with the surprise being that none of these have been recorded until now as they are all relatively common moths. Four species; Least Carpet, White-point, Tree-lichen Beauty and Square-spotted Clay - all once rare in the county - are now firmly established with the latter species even seen in double figures in one session in August. 10 new micro moths were added to the Lyndon list in 2022.

Migrant moth numbers were varied, on the one hand Pearly Underwing, Bordered Straw and Rusty-dot Pearl all occurred but Dark Sword-grass was again absent and this was the first year of recording when Silver Y went unseen either in a trap or as a day-flier.

The three most recorded species for the location were Common Wainscot, Large Yellow Underwing and Setaceous Hebrew Character with year counts of 77, 66 and 64 respectively with the highest count for a single species on one night being 42 Setaceous Hebrew Character on 20th August. This contrasts with some single night century counts for these and other species in previous years, although these decreases are probably nationwide and not unique to the reserve.

Rothamsted Moth Trap (AWBC)

The Rothamsted light-trap network currently comprises around 80 traps across the UK and Ireland with most traps run by volunteers and conservation organisations who contribute data to the network. The Rothamsted traps use 200w clear tungsten-filament bulbs and traps are emptied daily throughout the year. At Rutland Water, the Rothamsted trap has been in operation since 1999.

In 2022 the trap had its highest annual catch since it began operation with 4844 macro moths of 190 species recorded. Straw Dot, Dingy Footman and Round-winged Muslin were recorded in the highest numbers with 800, 353 and 328 caught respectively.

Painted Lady © LRWT

Butterfly Report

Alistair Lawrence and Tim Sexton

With the warmest New Year's Day on record, 2022 started as it meant to go on with the summer being remembered for being dry and sunny. Three months of the year in England were the warmest on record and the summer was one of the driest for over 25 years.

This year we undertook three transects for butterfly recording on the reserve. The aim of the survey is to follow a standardised methodology to monitor butterfly numbers, species diversity and distribution on the reserve. This can then be linked to management, and be compared year on year. Three volunteers, with support from staff, were responsible for regular visits to their transects in order to record the number of butterflies in a more systematic way. Prior to this, with the exception of the Lax Hill Transect (which has used the 'Pollard Walk' methodology for a number of years), historic records have not taken into consideration recorder effort (time), nor have covered a set route or distance.

Two new transects were established covering wildflower-rich grasslands and woodland/scrub areas of the Reserve at Lyndon and Egleton. Monitoring walks were carried out using the fixed-route (Pollard Walk) transect methodology as promoted through the UK Butterfly Monitoring Scheme (UKBMS). This involves walking a fixed route each week during the recording season which runs for 26 weeks from 1st April to 30th September, recording all butterflies within a 5m cube ahead of the walker. There are set guidelines for time of day, temperature, wind speed and amount of sun. Adopting this methodology means that it is possible to make a meaningful comparison of species indices and, over time, identify trends in their abundance.

The Egleton transect (between AWBC and Sharple's Meadow via Lagoon 2 woodland) was surveyed by Alistair Lawrence. The Lax Hill Transect (between AWBC and Lax Hill via Lagoon 6 meadow) was surveyed by Brian Webster. The Lyndon Transect (between Lyndon Visitor's Centre and Shallow Water Hide) was surveyed by Paul Bennett and Tim Sexton. Maps of the transect routes can be found in figures 10.3 - 10.6

For the purposes of data analysis, species maxima (the largest count of a given species recorded on any one survey visit) were used as this allows for differences in emergence times, along with recorder effort (number of survey visits made). The results of which are summarised in table 13.1.

The highlight of the surveys was a female Purple Emperor, which was noted in the Lyndon Transect in July. This is an uncommon species in VC55 and has only been recorded at Rutland Water once before, in 2014. Also, Marbled White continues to expand its range on the Reserve with sightings at Lyndon and in Sharple's Meadow (on the Egleton Transect). Survey visit dates are shown in table 13.2.

Species/Location	Egleton	Lax Hill	Lyndon	Total
Brimstone	3	9	2	14
Orange Tip	2	14	8	24
Large White	2	2	12	16
Small White	6	8	20	34
Green-veined White	4	10	2	16
Speckled Wood	5	16	7	28
Meadow Brown	43	46	161	250
Ringlet	10	84	148	242
Gatekeeper	11	27	19	57
Small Heath	1	1	0	2
Large Skipper	1	3	2	6
Small Skipper	0	4	13	17
Small/Essex Skipper	1	0	15	16
Essex Skipper	0	0	3	3
Holly Blue	3	0	2	5
Common Blue	3	1	2	6
Small Copper	1	0	2	3
Peacock	3	11	5	19
Comma	1	5	6	12
Red Admiral	1	4	2	7
Small Tortoiseshell	3	5	4	12
Painted Lady	0	1	0	1
Marbled White	2	0	4	6
Purple Emperor	0	0	1	1
Total	**106**	**251**	**440**	**797**

Table 13.1 Butterfly Transect Survey Species Maxima

Overall, the Lyndon Transect recorded the largest number of butterflies recorded, with maxima of Meadow Brown and Ringlet alone reaching 161 and 148 respectively. Notable absences include White-letter Hairstreak, which has been recorded in most years at Lax Hill around the Elm trees. Also the numbers of Common Blue were particularly low, perhaps reflecting wider declines in the UK. As it is the first time that a standardised methodology has been used for recording butterflies across the Reserve, there is little comparable data to draw conclusions on at this time. Transect routes are shown in figures 13.3-13.6.

Month	W/C	Egleton	Lax Hill	Lyndon
April	4th	0	0	0
	11th	0	1	0
	18th	0	0	0
	25th	0	1	0
May	2nd	1	1	0
	9th	1	0	1
	16th	0	1	1
	23rd	1	1	0
	30th	1	1	1
June	6th	0	0	0
	13th	1	1	0
	20th	0	1	1
	27th	1	1	0
July	4th	1	1	2
	11th	0	0	1
	18th	0	0	0
	25th	1	1	1
August	1st	1	1	0
	8th	0	1	1
	15th	1	0	0
	22nd	0	1	0
	Total	**10**	**14**	**9**

Table 13.2 Survey visit dates

Individual species records were kindly compiled by Alistair Lawrence throughout the year and include early emerging and late sightings made outside of the transect recording areas and recording periods.

Small Tortoiseshell
One seen close to Lagoon 4 on 15th March.

Peacock
One seen in Sharple's Meadow on 22nd March.

Comma
One was observed near Lagoon 4 on 18th March and a pair were seen on 22nd March within the same area.

Brimstone
A single male was seen near Lagoon 4 on 22nd March and also another near Mallard Hide on the same day.

Small White
First sighting on 21st April in Cottage Wood, Egleton.

Meadow Brown and Ringlet
Both species recorded in high number in early July at Lyndon Meadows.

Marbled White
Seen at both Sharple's Meadow and Lyndon Meadows in late June and early July.

Purple Emperor
A single female was recorded at Lyndon Meadows on bramble near to Deep Water Hide on the 7th July - the first record of this species at Lyndon and only the second record for the Reserve.

Green Hairstreak ©Libby Smith

Painted Lady
One was recorded on the Wet Meadow near Mallard Hide on 3rd July. Another was seen at Lax Hill on the 25th July - the only record of this species to be noted during the transect surveys. Two were also seen in the late afternoon, nectaring on Hemp Agrimony, at AWBC on 25th July.

Small Heath
A single individual was spotted near Whitwell Car Park on 17th May. Also, a new species for Sharple's Meadow when one was recorded there on the 15th August.

Common Blue
Two individuals were observed at Lagoon 7 on 15th May.

Purple Hairstreak
A single individual was seen in Cherry Wood near to the four ponds on 29th July. Counts of one, three and ten were seen just off the Reserve near Gibbet's Gorse on 1st, 3rd and 8th July respectively.

Black Hairstreak
Although not recorded on the Reserve, a single Black Hairstreak was seen briefly on bramble in the meadows behind Gibbet's Gorse.

Green Hairstreak
A single individual recorded next to the pond in front of Lyndon Visitor Centre on 10th May following a moth trapping session that morning. This is the first record at Rutland Water since 2003 and only the third record for the Reserve.

White Letter Hairstreak
No records of this scarce species at Rutland Water in 2022.

Figure 13.3 Lax Hill Transect Section 1

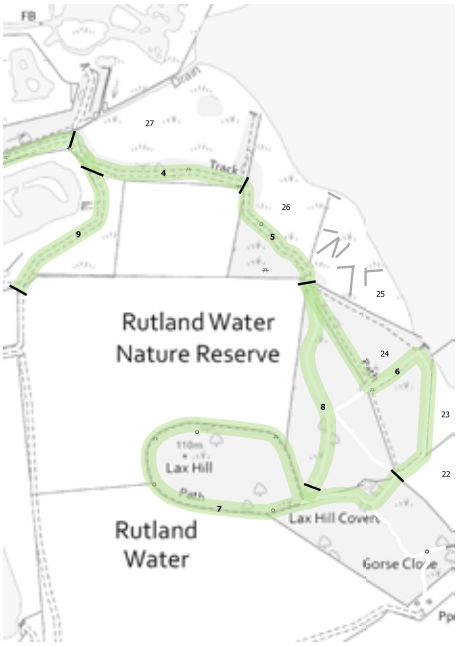


Figure 13.4 Lax Hill Transect Section 2

Figure 13.5 Egleton Transect

Figure 13.6 Lyndon Transect

Sharples' Meadow - a Butterfly Haven

Sharples Meadow © Alistair Lawrence

Alistair Lawrence

The concept of Sharples' Meadow as a wildlife haven for pollinating insects, especially butterflies, began in 2015, following a generous donation by the late Dr Sharples'. A designated area of poor quality grassland, approximately 1.4 acres, lying immediately south of Lagoon 4 was stripped, seeded and developed from 2016 onwards.

I have been recording butterflies at this site for almost the past six years and it has been really rewarding to see the progress made, with a variety of wildflowers that have established - along with growing numbers of butterflies. This is due to the hard work undertaken by Fran Payne (Grassland Reserve Officer) and her team.

Wildflowers now found on the meadow include Greater Knapweed, Field Scabious, Bird's Foot Trefoil, Wild Carrot, Yellow Rattle, Meadow Vetchling and Common Vetch.

As a result I have now seen and recorded a total of 21 species of butterfly since 2016, as listed below:

Small Skipper, Large Skipper, Brimstone, Large White, Small White, Green-veined White, Orange Tip, Small Copper, Brown Argus, Holly Blue, Common Blue, Red Admiral, Painted Lady, Small Tortoiseshell, Peacock, Comma, Marbled White, Gatekeeper, Meadow Brown, Ringlet and Small Heath.

In May 2018 Brown Argus was seen for the first time in the meadow and in September of the same year I observed several Small Coppers, including the more unusual sub-species known as form 'caeruleopunctata' - which has a row of blue spots on the hindwing.

Small Copper ©Alistair Lawrence

In July 2019 Marbled White appeared for the first time, and although the numbers are small, they have been seen each year since then. In 2022 a Small Heath was seen in late August - a first for this particular site and a species which has been declining in Britain in recent years.

Certainly Sharples Meadow has now become an exceptionally valuable wildlife habitat with its combination of hedgerow and open meadow.

Merzomyia westermanni © LRWT

Diptera and Hymenoptera

Brian Wetton

Hoverflies
Eight visits were made to Egleton Nature Reserve in 2022. The first visit on 2nd April only produced two common species of hoverfly. On May 5th 20 species were recorded including, as well as typical spring species, the relatively uncommon *Cheilosia latifrons*, *Neoascia interrupta* and *Neoascia meticulosa*. Good numbers of *Epistrophe eligans* and *Leucozona lucorum* were present. A further visit on 8th May saw 13 species recorded amongst which were *Platycheirus rosarum*, *Rhingia rostrata*, more *Neoascia interrupta* and a male of the rather uncommon *Pipiza bimaculata*. The last visit in May was on 21st when 24 species were recorded. Of particular note was the first record for the Reserve of Sphaerophoria taeniata. The commonest species that day were *Cheilosia albitarsis* and *Eristalinus sepulchralis* feeding on buttercups.

One visit on 30th June recorded the biggest number of hoverfly species this year (32), amongst which were two *Paragus haemorrhous*, three *Chrysotoxum verralli*, two *Scaeva pyrastri*, three *Xanthogramma pedissequum* and three *Parhelophilus versicolor*. Dominating the records however were over 50 of the abundant *Episyrphus balteatus* and 50 of the good wetland indicator species *Tropidia scita*. Other species recorded in double figures were *Platycheirus rosarum*, *Cheilosia vernalis*, *Eristalis intricarius* and the very common *Eristalis tenax*.

A single visit in July on 23rd recorded 23 species. A *Heringia heringi* was the most notable amongst otherwise regularly recorded summer species. A single visit was also made in August. By that time the effects of the heatwave had become evident on the decline of hoverflies. Nevertheless twenty species were recorded albeit in small numbers. Of special note was the first record for the Reserve of *Eristalis similis*. Finally on 4th September 12 species were recorded with a few *Volucella inanis* and Volucella zonaria the highlights.

One visit was made on 8th May to Hambleton Wood where only nine species were recorded, the most notable being the ancient woodland indicator Ferdinandea cuprea.

Other Diptera
A few other diptera were recorded in the course of the visits to Egleton. Of particular note was a female soldierfly Odontomyia tigrina on 30th June. This was the second record for VC55 the first also being in 2022 at Cropston. *Phasia hemiptera*, a bug parasite in the Tachinid family was recorded on 23rd July.

A number of records of Tabanidae came from Tim Sexton in late June/Early July including *Hybomitra bimaculata* (Hairy-legged Horsefly), *Tabanus autumnalis* (Large Marsh Horsefly), *Haematopota crassicornis* (Black-horned Cleg), *Haematopota pluvialis* (Notch-horned Cleg) and *Chrysops relictus* (Twin-lobed Deerfly). The latter two species being most frequently encountered at Rutland Water.

In late July, Tim reported *Merzomyia westermanni* a fruit fly which galls ragwort in Skylark Meadow. This was the first record of the Nationally Notable species in Rutland and only the fifth record for VC55. Also reported by Tim Sexton was *Oestrus ovis* (Sheep Nostril Fly). A species with few if any modern records from the Midlands (or indeed anywhere else in the UK) following its near eradication in Britain through widespread use of sheep dip (pictured below).

Oestrus ovis © LRWT

Bees

Of the solitary bees recorded in 2022, the notable finds were: *Andrena praecox* at Lyndon on 10th April; a male *Andrena labialis* on 8th May at Egleton; a male Andrena nitida at Hambleton Wood and a female of the same species at Egleton on 8th May; a female *Andrena helvola* on 21st May at Egleton; a male *Chelastoma campanularum* on 30th June at Egleton; and a female *Osmia leaiana* on 23rd July at Egleton. The common species recorded during the year were *Andrena chrysosceles*, *Andrena haemorrhoa*, *Andrena nigroaenea*, *Lassioglossum calceatum*, *Halictus tumulorum*, *Nomada fabriciana*, *Nomada flava*, *Nomada flavoguttata*, *Nomada ruficornis* and *Sphecodes monilicornis*. In addition, Tim Sexton reported *Sphecodes ephippius*, *Lasioglossum punctatissimum*, *Chelostoma campanularum*, *Osmia leaiana*, *Megachile centuncularis*, *Anthidium manicatum*, *Hylaeus confusus*, *Nomada panzeri*, *Nomada flava* and *Colletes daviesanus*. Of the bumblebees, *Bombus pratorum*, *Bombus terrestris*, *Bombus pascorum*, *Bombus horturum*, *Bombus lapidarius*, *Bombus campestris* and *Bombus barbutellus* were recorded.

Wasps

Few solitary wasps were recorded this year: *Ancistroceros nigricornis* on 30th June, Ectemnius literatus on 23rd July and *Rhopalum coarctatum* on 23rd July. *Chrysura radians* (a nationally notable jewel wasp) was reported by Tim Newton in early May.

Sawflies

Little attention was paid to sawflies and few were recorded: *Aglaostigma aucupariae* on 5th May, *Aglaostigma fulvipes* on 5th May, *Athalia circularis* on 5th May, *Tenthredo mesomelas* on 21st May and *Tenthredo temula* on 21st May. The larvae of *Athalia scutellariae* was found on Gypsywort at the edge of the Lagoon 3 Reedbed by Tim Sexton in late August.

Dinocampus coccinellae found at Rutland Water

Tim Sexton

A tiny wasp which turns ladybirds into 'zombie bodyguards' was found at Lyndon near Waderscrape Hide in late April 2022. There are few records for *Dinocampus coccinellae* in Britain (only 21 on the NBN Gateway) and most are centred around Leicester. This is the first record for Rutland.

The wasp can easily be found by looking for its ladybird host. In early spring the adult wasp injects a single egg under the wing cases of a ladybird. When the egg hatches the larvae feeds on all but the essential organs of the ladybird. When it is ready to pupate, the larvae emerges from the now paralysed ladybird and spins a cocoon under its body. The warning colours of the ladybird protecting it from would-be predators. It is thought that a virus carried by the wasp, *Dinocampus coccinellae* paralysis virus (DcPV), causes paralysis in the ladybird but does not affect the developing wasp larvae itself.

After approximately two weeks the adult wasp emerges from the cocoon and in some cases, the ladybird recovers from its ordeal.

Seven-spot Ladybird with wasp cocoon © LRWT

Adult wasp after emerging ©LRWT

Stenurella melanura © LRWT

The Beetles Top the Charts

Tim Sexton

A process to include the new lagoons (created in 2010) into the Rutland Water SSSI citation was started by Natural England, LRWT and Anglian Water in early 2022. It was decided that through the process there would be an opportunity to update features of the SSSI to reflect the current conservation value of the site. Features which were being considered for inclusion included; Biodiversity Action Plan (BAP) grasslands, breeding bird assemblages, winter gull roosts and invertebrate assemblages.

Analysis of historical invertebrate records for the Reserve showed that beetle assemblages were of particular interest. As a result, a series of surveys were planned in order to back up the historic data with modern records and produce baseline data for beetle populations on the Reserve. From these records, important assemblages of invertebrates could be identified and considered for inclusion to the SSSI citation.

Historically there have been few targeted surveys for Coleoptera at Rutland Water. The majority of records come from surveys undertaken by Rutland Natural History Society in the early 1980s, Derek Lott in the 1990s, John Wright in the early 2000's and more recently Graham Finch in his role as County Coordinator for beetles in VC55 (Leicestershire and Rutland). Up to 2021 a total of 442 species of beetle have been recorded at Rutland Water including 44 species with conservation status, 34 VC55 Red Data Book species and 85 species considered significant in Leicestershire and Rutland.

Historic records for Coleoptera, taken from Leicestershire and Rutland Environmental Records Centre (LRERC) between 1975 and 2021, were processed through Pantheon - a database tool which analyses invertebrate sample data. Once the data is added to Pantheon, species lists are grouped into assemblages then scored based on the number of specialists of that assemblage being present in the sample. The results showed that the site was favourable and even far exceeding the threshold in a few broad habitat types; decaying wood (bark and sapwood decay), decaying wood (heartwood decay) and marshland (undisturbed fluctuating marsh). With many nationally scarce and notable species being associated with the above assemblages, a series of surveys were proposed for the winter of 2021/22 and spring/summer 2022 focusing on these areas in order to back up the historic data.

A total of seven surveys were carried out, approximately once every six weeks, between November 2021 and November 2022. Surveys were undertaken by Tim Sexton (Species and Recording Officer, Rutland Water), Steve Lane (Invertebrate Ecologist), Graham Finch (County Coordinator for Coleoptera in VC55) and Anona Finch. Visit dates and sample areas/methods are shown below.

24th Nov 2021 - Lagoon 2 Meadow; sieving Deschampsia tufts. Lagoon 2 reedbed; sieving litter and Juncus tufts. Optics Field (next to AWBC); sieving Deschampsia tufts and dung. Lagoon 5 outflow sieving marginal vegetation. AWBC Pond; pond netting and sieving marginal vegetation.
15th Dec 2021 - Cherry Wood; sieving Deschampsia tufts and woodland floor litter, beating boughs and branches and hand searching under logs and bark. Lagoon 3 reedbed; sieving debris.
25th Feb 2022 - Barn Hill Creek; sieving debris in drawdown and Deschampsia/Juncus tufts. Armley and Hambleton woods; tree and bough beating, sieving woodland floor litter and old bracket fungi.
28th Apr 2022 - Lyndon Nature Reserve; Ringing Area sieving debris and litter, sweep netting low vegetation and tree beating. Field 2; sieving material from the shore line and sweep netting of low vegetation. Gibbet Gorse; sieving woodland floor litter, peeling bark and tree beating. Burley Fish Ponds sieving sheep dung, sweep netting low vegetation and sieving marginal vegetation.
22nd Jun 2022 - Wet Meadow to Fieldfare Hide; sweep netting low vegetation, sieving marginal vegetation in ditches. Lax Hill; tree and bough beating, sieving woodland floor litter and old bracket fungi fruiting bodies.
23rd Aug 2022 - Sharple's Meadow; sweep netting low vegetation, sieving material from grass piles. Lagoon 4; sweep netting vegetation on the Islands, sieving shore debris and hand searching the drawdown zone. Cherry Wood Ponds; sieving debris, hand searching the drawdown zone. Greenbank; sieving shore debris and hand searching the drawdown zone.
10th Nov 22 - Sharple's Meadow; sieving material from grass heap. Barnsdale Wood; sieving woodland floor litter, peeling bark, tree and bough beating and sieving fungi fruiting bodies.

As the survey was looking at presence/absence and not population data, it was not deemed necessary to follow a scientific methodology for sampling or carry out timed samples. As such, an exhaustive method of sampling was adopted focusing on key habitats within the areas of the Nature Reserve and areas of the wider Reservoir that are managed by Leicestershire and Rutland Wildlife Trust.

Where possible species were identified in the field and released. For more difficult taxa, specimens were taken for microscopic examination. Selected specimens (predominantly scarce or difficult taxa) have been retained as voucher specimens.

After seven scheduled visits, and with roving records collected during the survey period, a total of 572 species of beetle were recorded. 538 of which were assigned habitat scores through Pantheon. 81 species of true bug (Hemiptera) were also recorded during the visits along with smaller numbers of spider, harvestmen, true fly, snails, millipedes, earwigs, woodlice, moths, wasps and pseudoscorpions.

Of the beetles recorded, 54 species (9% of the total recorded) are considered to be of conservation importance, i.e. have a conservation status such as Nationally Notable, Nationally Scarce or Red Data Book. One is on the European Red List (data deficient), two are RDB K, one is RDB2, one is Nationally Notable A, 15 are Nationally Notable B, 18 are Notable, two are Nationally Rare (with one vulnerable) and 14 are Nationally Scarce (one of which is also a Section 41 species).

A number of additional species (81) which were recorded during the survey period do not have national statuses but are considered to be locally scarce or rare in Leicestershire and Rutland. A total of 24 species were recorded for the first time in the Vice County (VC55) these are summarised in table 14.1. It is worth noting that a degree of caution should be exercised when using the statuses from Pantheon though as the IUCN Reviews continue to update them as more knowledge is gained about the species status and distribution.

Ctenicera pectinicornis © LRWT

Order	Family	Species	Status
Coleoptera	Coccinellidae	*Nephus quadrimaculatus*	[RDB 2]
Coleoptera	Elateridae	*Ctenicera pectinicornis*	Na
Coleoptera	Coccinellidae	*Hippodamia variegata*	[Nb]
Coleoptera	Curculionidae	*Microplontus campestris*	[Nb]
Coleoptera	Curculionidae	*Rhinocyllus conicus*	[Nb]
Coleoptera	Anthribidae	*Platyrhinus resinosus*	[Nb]
Coleoptera	Anthribidae	*Platystomos albinus*	[Nb]
Coleoptera	Erirhinidae	*Notaris scirpi*	[Nb]
Coleoptera	Erirhinidae	*Thryogenes scirrhosus*	[Nb]
Coleoptera	Erotylidae	*Dacne rufifrons*	DD (EU)
Coleoptera	Ciidae	*Cis festivus*	Nb
Coleoptera	Curculionidae	*Cryptorhynchus lapathi*	Nb
Coleoptera	Curculionidae	*Polydrusus flavipes*	Nb
Coleoptera	Rhynchitidae	*Lasiorhynchites cavifrons*	Nb
Coleoptera	Curculionidae	*Gymnetron veronicae*	Nb
Coleoptera	Curculionidae	*Pelenomus canaliculatus*	Nb
Coleoptera	Staphylinidae	*Gabrius osseticus*	Nb
Coleoptera	Staphylinidae	*Stenus fornicatus*	Nb
Coleoptera	Cryptophagidae	*Atomaria pulchra*	Notable
Coleoptera	Staphylinidae	*Aleochara discipennis*	Notable
Coleoptera	Staphylinidae	*Cypha pulicaria*	Notable
Coleoptera	Staphylinidae	*Datomicra nigra*	Notable
Coleoptera	Staphylinidae	*Haploglossa picipennis*	Notable
Coleoptera	Staphylinidae	*Dochmonota clancula*	Notable
Coleoptera	Staphylinidae	*Platystethus nodifrons*	Notable
Coleoptera	Staphylinidae	*Calodera riparia*	Notable
Coleoptera	Staphylinidae	*Carpelimus lindrothi*	Notable
Coleoptera	Staphylinidae	*Carpelimus obesus*	Notable
Coleoptera	Staphylinidae	*Dacrila fallax*	Notable
Coleoptera	Staphylinidae	*Dasygnypeta velata*	Notable
Coleoptera	Staphylinidae	*Datomicra zosterae*	Notable
Coleoptera	Staphylinidae	*Falagria sulcatula*	Notable
Coleoptera	Staphylinidae	*Gnypeta ripicola*	Notable
Coleoptera	Staphylinidae	*Schistoglossa gemina*	Notable
Coleoptera	Staphylinidae	*Tachyusa coarctata*	Notable
Coleoptera	Staphylinidae	*Omalium rugatum*	Notable
Coleoptera	Hydrophilidae	*Cercyon granarius*	NR
Coleoptera	Heteroceridae	*Heterocerus fusculus*	NR;VU
Coleoptera	Hydrophilidae	*Cercyon bifenestratus*	NS
Coleoptera	Chrysomelidae	*Longitarsus fowleri*	NS
Coleoptera	Chrysomelidae	*Donacia cinerea*	NS
Coleoptera	Chrysomelidae	*Donacia thalassina*	NS
Coleoptera	Dermestidae	*Megatoma undata*	NS
Coleoptera	Melandryidae	*Orchesia micans*	NS
Coleoptera	Melandryidae	*Orchesia minor*	NS
Coleoptera	Monotomidae	*Rhizophagus parallelocollis*	NS
Coleoptera	Phloiophilidae	*Phloiophilus edwardsii*	NS
Coleoptera	Salpingidae	*Lissodema denticolle*	NS
Coleoptera	Carabidae	*Badister dilatatus*	NS
Coleoptera	Carabidae	*Bembidion fumigatum*	NS
Coleoptera	Carabidae	*Bembidion octomaculatum*	NS
Coleoptera	Carabidae	*Bembidion quadripustulatum*	NS;S41
Coleoptera	Staphylinidae	*Neobisnius procerulus*	RDB K
Coleoptera	Staphylinidae	*Anopleta corvina*	RDB K

Table 14.1 Species with conservation status recorded during beetle surveys. RDB2 - Vulnerable, Na - Notable A, (Nb) - Notable B (under review), Nb - Notable B, Notable - Notable or Nationally Scarce, NR - Nationally Rare, NR;VU - Nationally Rare; Vulnerable, NS - Nationally Scarce, NS:S41 - Nationally Scarce; Section 41, RDB K - Insufficiently Known.

All of the species data collected through the survey period was run through Pantheon and the results show that the site continues to be favourable and above the threshold for the following assemblages; A212 decaying wood – bark and sapwood decay (39 species, 19 required), A213 decaying wood – fungal fruiting bodies (17 species, 7 required) and W221 marshland – undisturbed fluctuating marsh (10 species, 4 required). The threshold was also met (but did not exceed) for W314 acid and sedge peats – reed-fen pools (11 species, 11 required).

A summary of the species associated with each of the assemblages are shown in Tables 14.2 - 14.6.

Platystomos albinus © LRWT

Order	Family	Species	Status
Coleoptera	Anobiidae	*Anobium fulvicorne*	
Coleoptera	Anobiidae	*Anobium inexspectatum*	
Coleoptera	Anobiidae	*Anobium punctatum*	
Coleoptera	Anthribidae	*Platystomos albinus*	[Nb]
Coleoptera	Cantharidae	*Malthinus balteatus*	
Coleoptera	Cantharidae	*Malthinus flaveolus*	
Coleoptera	Cantharidae	*Malthinus seriepunctatus*	
Coleoptera	Cantharidae	*Malthodes marginatus*	
Coleoptera	Cantharidae	*Malthodes minimus*	
Coleoptera	Cerambycidae	*Clytus arietis*	
Coleoptera	Cerambycidae	*Grammoptera ruficornis*	
Coleoptera	Cerambycidae	*Phymatodes testaceus*	
Coleoptera	Cerambycidae	*Pogonocherus hispidulus*	
Coleoptera	Cerambycidae	*Rutpela maculata*	
Coleoptera	Cerambycidae	*Stenurella melanura*	
Coleoptera	Cleridae	*Thanasimus formicarius*	
Coleoptera	Colydiidae	*Cicones (Synchita) undatus*	
Coleoptera	Curculionidae	*Acalles misellus*	
Coleoptera	Curculionidae	*Dryocoetes autographus*	
Order	Family	*Species*	Status
Coleoptera	Curculionidae	*Magdalis ruficornis*	
Coleoptera	Curculionidae	*Scolytus intricatus*	
Coleoptera	Elateridae	*Stenagostus rhombeus*	
Coleoptera	Leiodidae	*Anisotoma humeralis*	
Coleoptera	Melandryidae	*Orchesia undulata*	
Coleoptera	Monotomidae	*Rhizophagus dispar*	
Coleoptera	Monotomidae	*Rhizophagus parallelocollis*	NS
Coleoptera	Mordellidae	*Mordellochroa abdominalis*	
Coleoptera	Phloiophilidae	*Phloiophilus edwardsii*	NS
Coleoptera	Salpingidae	*Lissodema denticolle*	NS
Coleoptera	Salpingidae	*Vincenzellus ruficollis*	
Coleoptera	Scraptiidae	*Anaspis fasciata*	
Coleoptera	Scraptiidae	*Anaspis frontalis*	
Coleoptera	Scraptiidae	*Anaspis maculata*	
Coleoptera	Scraptiidae	*Anaspis pulicaria*	
Coleoptera	Scraptiidae	*Anaspis regimbarti*	
Coleoptera	Staphylinidae	*Dropephylla ioptera*	
Coleoptera	Staphylinidae	*Scaphidium quadrimaculatum*	
Coleoptera	Zopheridae	*Bitoma crenata*	

Table 14.2 Assemblage A212, Tree Associated – decaying wood, bark and sapwood decay. Note: assemblage also includes one hemipteran, Aneurus avenius, (not shown in table) which was recorded from one of the samples.

Order	Family	Species	Status
Coleoptera	Anthribidae	*Platyrhinus resinosus*	[Nb]
Coleoptera	Biphyllidae	*Biphyllus lunatus*	
Coleoptera	Ciidae	*Cis bilamellatus*	
Coleoptera	Ciidae	*Cis boleti*	
Coleoptera	Ciidae	*Cis festivus*	Nb
Coleoptera	Ciidae	*Ennearthron cornutum*	
Coleoptera	Ciidae	*Octotemnus glabriculus*	
Coleoptera	Ciidae	*Orthocis alni*	
Coleoptera	Erotylidae	*Dacne rufifrons*	DD (Europe)
Coleoptera	Melandryidae	*Orchesia micans*	NS
Coleoptera	Melandryidae	*Orchesia minor*	NS
Coleoptera	Mycetophagidae	*Litargus connexus*	
Coleoptera	Mycetophagidae	*Mycetophagus multipunctatus*	
Coleoptera	Mycetophagidae	*Mycetophagus quadripustulatus*	
Coleoptera	Tenebrionidae	*Eledona agricola*	
Coleoptera	Tetratomidae	*Tetratoma fungorum*	

Table 14.3 Assemblage A213, Tree Associated – decaying wood, fungal fruiting bodies

Order	Family	Species	Status
Coleoptera	Carabidae	*Badister dilatatus*	NS
Coleoptera	Carabidae	*Bembidion clarkii*	
Coleoptera	Carabidae	*Bembidion gilvipes*	
Coleoptera	Staphylinidae	*Datomicra nigra*	Notable
Coleoptera	Staphylinidae	*Datomicra zosterae*	Notable
Coleoptera	Staphylinidae	*Dochmonota clancula*	Notable
Coleoptera	Staphylinidae	*Myllaena infuscata*	
Coleoptera	Staphylinidae	*Oxypoda lentula*	
Coleoptera	Staphylinidae	*Platystethus nodifrons*	Notable
Coleoptera	Staphylinidae	*Stenus pallipes*	

Table 14.4 Assemblage W221, Wetland – Marshland, undisturbed fluctuating marsh

During the survey period a total of 23 species were recorded new to VC55. Of these, *Bembidion octomaculatum*, a shoreline carabid, was discovered on the edge of the Lagoon 4 islands. This species was formerly considered to be extinct in Great Britain until it was rediscovered in the 1990s. It is still a very rare species in the UK and remains restricted largely to areas of the south and south east.

Haploglossa picipennis, a rove beetle, was found by sieving leaf litter from Cherry Wood. This species is unusual in that it is only associated with the nests of raptors – perhaps this had fallen from a Buzzard or Sparrowhawk nest? Further individuals were found in material sieved from an old Marsh Harrier nest in Heron Bay. There are only 21 other records on the National Biodiversity Network (NBN) Atlas, mostly in Scotland and Wales. However, records are known from Norfolk.

Cryptophilus integer, a species of pleasing fungus beetle, was found under driftwood at the water's edge of Greenbank and has only 6 other UK records on the NBN. Myrmecocephalus concinnus, a rove beetle, is on the Global Register of Introduced and Invasive Species – Great Britain. A number of individuals were discovered by sieving material from a grass heap at the edge of Sharple's Meadow. There are only 22 other occurrences of this species on the NBN in the UK.

A full list of species new to VC55 can be found in table 11.5.

Using the data collected from the seven visits, along with roving records noted during the survey period, the important invertebrate species assemblages, which were identified through the historic data (compiled over 45 years), have been confirmed as still being present on the Reserve and in most cases have improved in value. When added to the historic data, the new scores well exceed the thresholds for assemblages A212, A213 and W221, but still only met the threshold for W314. This provides confidence that if the first three assemblages were to be considered for inclusion as features of the Rutland Water SSSI designation, they would maintain favourable condition and even increase in number as the Reserve matures over time. Following the the surveys, the total number of beetle species recorded on the Reserve is now 776.

Further targeted studies of Saproxylic communities are planned for spring 2023 including the deployment of vane traps/flight interceptor traps and subterranean pitfall traps, to be positioned around veteran trees in the ancient woodland compartments of the Reserve. The results of pitfall trapping during 2021, where 80 traps were positioned on the shoreline of the islands on the eight lagoons (to be analysed), will also contribute to the study.

An ancient ash tree with potential for saproxylic beetles and volunteers sampling tussocks and grass piles

Order	Family	Species	Status
Coleoptera	Carabidae	*Badister dilatatus*	NS
Coleoptera	Carabidae	*Bembidion octomaculatum*	NS (Extinct)
Coleoptera	Carabidae	*Bembidion quadripustulatum*	NS; S41
Coleoptera	Hydrophilidae	*Cercyon granarius*	NR
Coleoptera	Hydrophilidae	*Cercyon sternalis*	
Coleoptera	Erotylidae	*Cryptophilus integer*	
Coleoptera	Staphylinidae	*Dimetrotina laticollis*	
Coleoptera	Carabidae	*Dyschirius tristis*	
Coleoptera	Staphylinidae	*Haploglossa picipennis*	Notable
Coleoptera	Ptinidae	*Hemicoelus fulvicornis*	
Coleoptera	Apionidae	*Ischnopterapion modestum*	
Coleoptera	Staphylinidae	*Leptusa pulchella*	
Coleoptera	Mycetophagidae	*Litargus balteatus*	
Coleoptera	Curculionidae	*Magdalis ruficornis*	
Coleoptera	Staphylinidae	*Myrmecocephalus concinnus*	Introduced
Coleoptera	Staphylinidae	*Ocys tachysoides*	
Coleoptera	Staphylinidae	*Oligota punctulata*	
Coleoptera	Staphylinidae	*Platystethus alutaceus*	
Coleoptera	Cerambycidae	*Pseudovadonia livida*	
Coleoptera	Corylophidae	*Sericoderus brevicornis*	
Coleoptera	Curculionidae	*Sitona obsoletus*	
Coleoptera	Staphylinidae	*Stenus nitens*	
Coleoptera	Staphylinidae	*Traumoecia taxiceroides*	
Coleoptera	Staphylinidae	*Tychus niger*	

Table 14.5 Species new to VC55

Fungi Report

Fungi Report
Linda Clark

Records for Fungi were received in the months of January to April and then from August to December. This was possibly due to the fact that the summer of 2022 had drought conditions and consequently few fungi were observed in the months between April and August.

Altogether 98 species were recorded across Rutland Water Nature Reserve. The most common of these being Yellow Brain (*Tremellla mesenterica*) and Stag's Horn/Candlesnuff (*Xylaria hypoxylon)*. Rain and heavy dews in late September/beginning of October produced a flourish of fungi following the dry spell. Stag's Horn fruiting bodies were noted throughout the reserve after having been conspicuous by its absence in previous months - normally one can see these almost every month of the year.

Slime moulds, which are not fungi, as they have to consume nutrients, are generally included with fungi in reports. Notoriously difficult to identify only three species were observed in 2022, one of these being unidentified but the other two were *Didymium squamulosum* on a Field Maple leaf, and *Fugilo septica* in Legacy Wood.

The areas searched most frequently for fungi at Egleton were Lax Hill, lagoons 5 and 7, Burley Fish Ponds, Barnsdale Wood and the wooded area around AWBC (Anglian Water Birdwatching Centre). The track leading to Gibbets Gorse from Lyndon centre and Gibbets Gorse were also surveyed on the Lyndon side of the Reserve. A visit to the Reserve by the Leicestershire Fungi Study Group (LFSG) on the 22nd September, which concentrated on Cherry Wood, recorded 26 species. A summary of species recorded on this forray can be seen in table 15.1.

Rare fungi found at Rutland Water in 2022 included Marasmius limosus - which is a parachute type of fungi found on reeds. Only 39 records appear in the UK on the NBN Gateway database and the Rutland Water record was the first record for VC55. Once discovered and identified they were subsequently noticed in most reedbeds across the site when searched for. The Chestnut Bolete (*Gyroporus castaneus*) was another first for VC55 when it was discovered in Gibbet's Gorse in October - there appears to only be one other record in the East Midlands. One of the identification features of this fungus, which separates it from other species in the genus, is its hollow stipe. The survey by the Leicestershire Fungi Study Group in September discovered White Tubelet (*Henningsomyces candidus*) which was also a county first.

Cherry Wood Fungi Forray - LFSG	
Scientific Name	**Common Name**
Calocera cornea	Small Stagshorn
Calvatia gigantea	Giant Puffball
Chlorociboria aeruginascens	Green Elfcup
Crepidotus cesatii	Oysterling
Diatrypella quercina	Oak Blackhead
Erysiphe circaeae	Powdery Mildew
Ganoderma applanatum	Artist's Bracket
Ganoderma australe	Southern Bracket
Henningsomyces candidus	White Tubelet
Heterobasidion annosum	Root Rot
Hymenochaete rubiginosa	Oak Curtain Crust
Hypholoma fasciculare	Sulphur Tuft
Marasmiellus ramealis	Twig Parachute
Marasmius oreades	Fairy Ring Mushroom
Mycena haematopus	Burgundy drop bonnet
Mycena tenerrima	Frosty bonnet
Panaeolus acuminatus	Dewdrop mottlegill
Phloemana spirea	Bark bonnet
Phragmidium bulbosum	Bramble rust
Phragmidium violaceum	Bramble rust
Picipes badius	Bay Polypore
Pluteus nanus	Dwarf shield
Schizophyllum commune	Splitgill
Stereum hirsutum	Hairy Curtain Crust
Tremella mesenterica	Yellow Brain
Xylaria hypoxylon	Candlesnuff Fungus

Table 15.1 Records from LFSG foray on 22nd September

A few notable fungi recorded in 2022 are as follows;

February - Smoky Bracket (Bjerkandera adjusta) found in the copse by AWBC. A fascinating species in that it can be found as a bracket, a resupinate, in rosette form or with a cap.

March. Beechmast Candlesnuff (*Xylaria carpophilia*) found on beechmast which was covered in leaf litter at the top of Lax Hill.

April - Semi Free Morel (*Morchella semibera*) on the summer track (Sharple's Meadow end).

Chestnut Bolete (*Gyroporus castaneus*) © LRWT

October - Gibbet's Gorse. Black Bulgar (*Bulgaria inquinans*), Chestnut Bolete (*Gyroporus castaneus*), Oakleaf Cup (*Rutstroemia sydowiania*) - the cup of this minute fungi measures under 2mm. Lagoon 3 reedbed/ Cherry Wood. Reed Parachute (*Marasmius limosus*), Stubble Rosegill (Volvariella gloiocephala) - this fungus arises from a volva which develops into a cup and stipe. Also three typhus species in Cherry Wood. Typha erthopus (Red Leg Club). T.setipes. T micans.

Oakleaf Cup (*Rutstroemia sydowiania*) © LRWT

Reed Parachute (*Marasmius limosus*) ©LRWT

November. Magpie Inkcap (*Coprinopsis picacea*) Barnsdale Wood (pictured opposite). Two specimens were found in close proximity - the first records of this species at Rutland Water.

December. Bleeding Bonnet (*Mycaena sanguino lenta*). AWBC and the final species of notable fungi to be recorded in the year was the Spring Hazelcup (*Encoelia furfuracea*) - a widespread but uncommon species in the UK. Barnsdale Wood.

Spring Hazelcup (*Encoelia furfuracea*) © LRWT

There are many ways you can keep in touch and support our work

Facebook
@rutlandwaternaturereserve
@RutlandOspreyProject
@leicswildlife

Twitter
@RutlandWaterNR
@rutlandospreys
@leicswildlife

Instagram
@rutlandwaternaturereserve
@rutlandospreys
@leiceswildlife

Post us a letter to:
Leicestershire and Rutland Wildlife Trust,
The Volunteer Training Centre,
Oakham Road, Near Hambleton,
Oakham , Rutland, LE15 8TL

Call Us:
01572 720049
Email Us:
info@lrwt.org.uk

Visit our website:
www.lrwt.org.uk

Your support helps us to:
Protect and enhance the wild places of Leicestershire and Rutland. Inspire people about the natural world. Stand up for wildlife and the natural environment.

Leicestershire & Rutland Wildlife Trust

love every drop anglianwater