Changes in numbers of waterbirds on the Cley and Salthouse Marshes.

Introduction

Data availability

The data used come from the nationally co-ordinated Wetland Bird Survey (WeBS) counts (a web link given at the end gives full details). These counts are made once a month over high tide on a day when there is a very high tide in the morning. Local counts are made by teams of wardens and volunteers at two sites Cley Marshes and Salthouse Marshes such that the entire coastal zone including tidal areas, salt marshes, adjacent freshwater marshes and wet meadows between Beach Road at Cley and Kelling Hard are covered.

Twelve of the commoner wetland bird species counted have been selected for examination: Shelduck, Wigeon, Gadwall, Teal, Mallard, Moorhen, Avocet, Lapwing, Dunlin, Ruff, Black-tailed Godwit and Redshank.

Year-round count data for the selected species are available for most months for Cley Marshes from August 1997 and for Salthouse Marshes from May 1999. Some earlier count data are also available but only for the winter months. For the period from May 1999 there are four months when no count was made at Cley and ten months when no count was made at Salthouse.

Data analysis

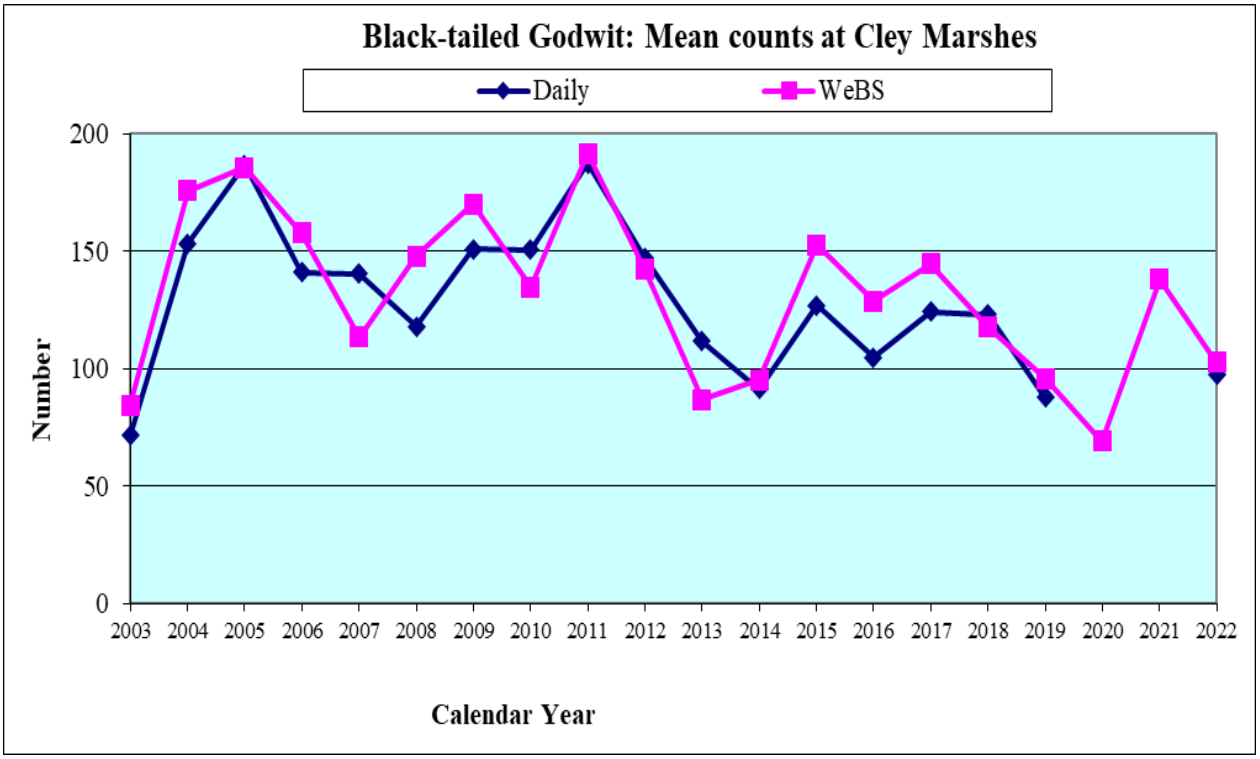
Changes in numbers of a species have not been determined by examining the counts for a calendar year but by examining the counts over a 12-month cycle. The cycle goes from July to June for wildfowl and from June to May for most waders. Each cycle therefore aims to include the effects of production of fledged youngsters, autumn migration, mortality for a complete winter period and return migration in spring. This is not ideal for a species such as Avocet that is a breeding species that then leaves the area in autumn to moult and with only a few individuals returning to over-winter so the cycle goes from October to September for this species.

A simple but very crude analysis has been made based on making estimates for those months where a count is missing at one of the two sites. A proper statistical analysis would instead fit a model to the actual available data only. The estimate for a site and month with a missing count was usually calculated based on the counts there for the other months in that 12-month cycle and whether or not the pattern of occurrence for that species has changed radically over the years. If the pattern of occurrence is relatively stable then all the data were used to determine monthly indices (the proportion of the total count for a year due to a month). If it is not stable then the data for a shorter time period were used. Very occasionally the missing counts in the 12-month cycle would normally have contributed more than 25% of the total sum of the counts for that cycle and it was therefore considered that no clear annual trend had been established for that species, year and site. The estimate was then calculated by averaging the counts for the four closest years with counts for that species, month and site.

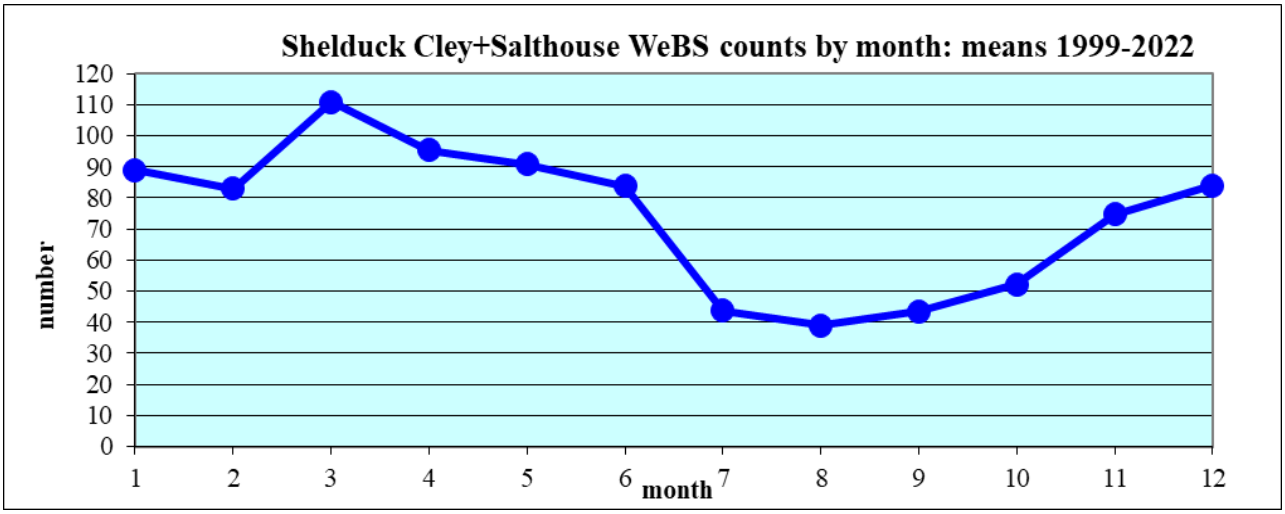
Presentation of Results

Two graphs are shown for each species. The first shows how numbers vary during the calendar year and gives the mean total count for each month averaging over the years from 1999 to 2022. The second graph shows how numbers have changed over the years. The mean counts are given for the total area averaging over the twelve months of the annual cycle. Five-year moving average trend lines have been generated in order to make a comparison with national 10-year smoothed trends for the species as given in the WeBS online report Waterbirds in the UK 2018/19.

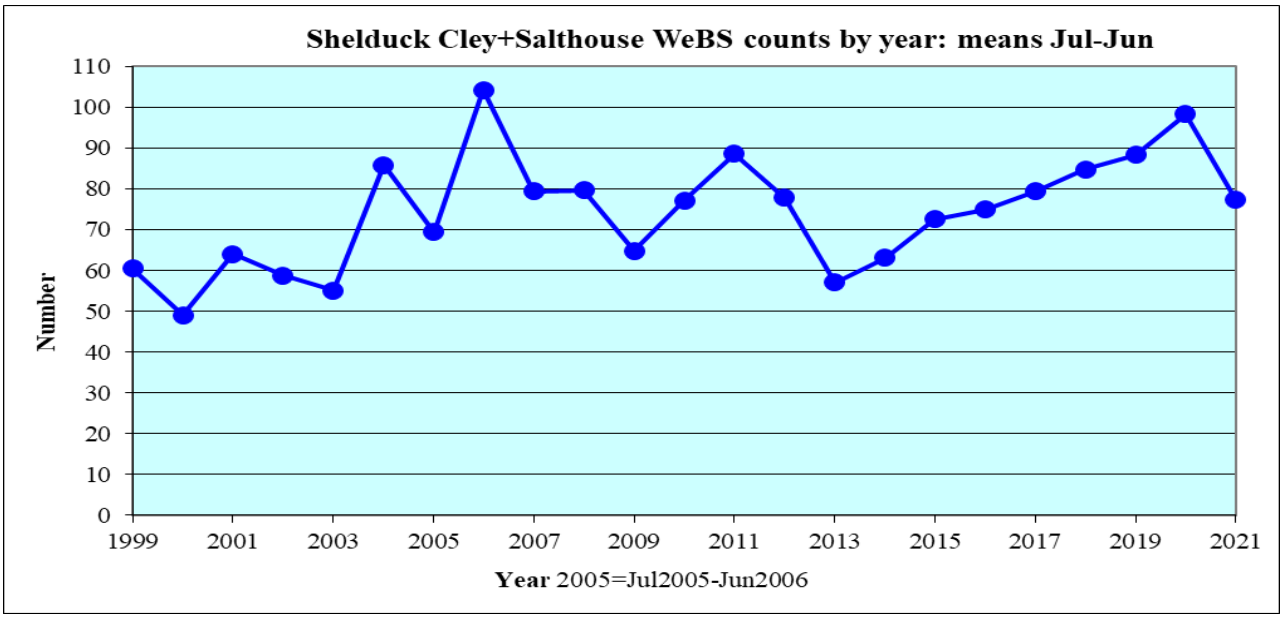
It could be questioned how representative a count made on one specific day will be for a month. Black-tailed Godwits have been counted at Cley Marshes more or less daily from 2003 with the exception of the corona virus period 2020+2021. The following graph compares the average of the twelve WeBS counts for a given year with the average of the mean daily counts for each month in that year. The resultant overall trends do look similar.



Shelduck

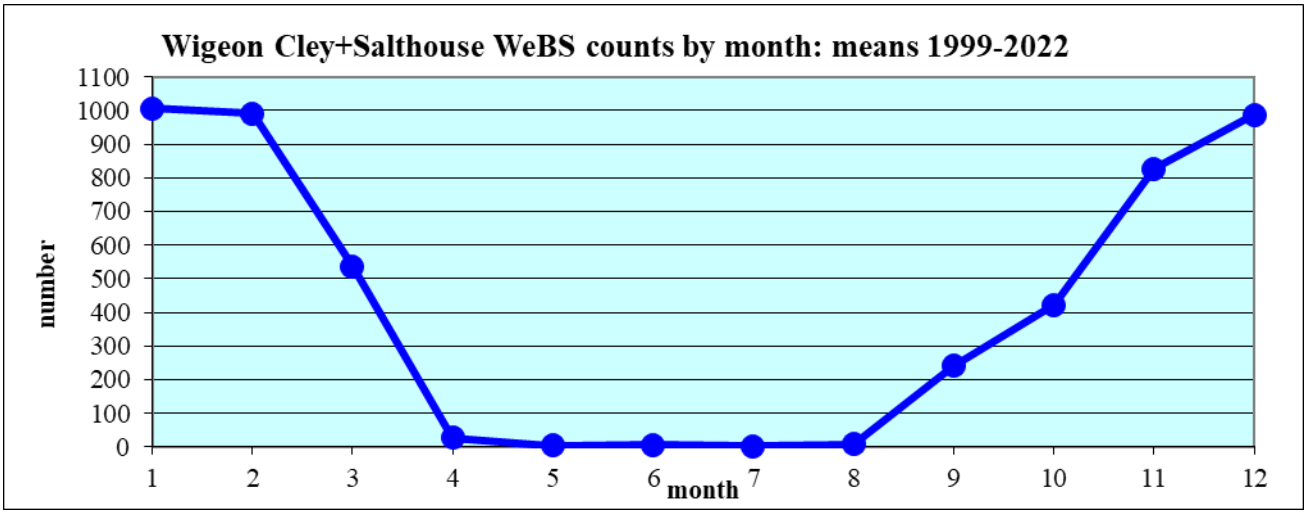


Total numbers of Shelduck counted are at their highest (about 110 birds) in March and then decrease steadily through the calendar year to August. The breeding adults start leaving in June eventually just leaving those guarding creches of youngsters. Some of the departed adults are replaced by youngsters when they are large enough to be included in the counts. Numbers increase again significantly when the overwintering adults eventually return after completion of their moult on the east side of the North Sea. Numbers of Shelduck appear to have been relatively stable during the spring and breeding season over the years but there was a reduction in numbers present in the autumn and midwinter in recent years.

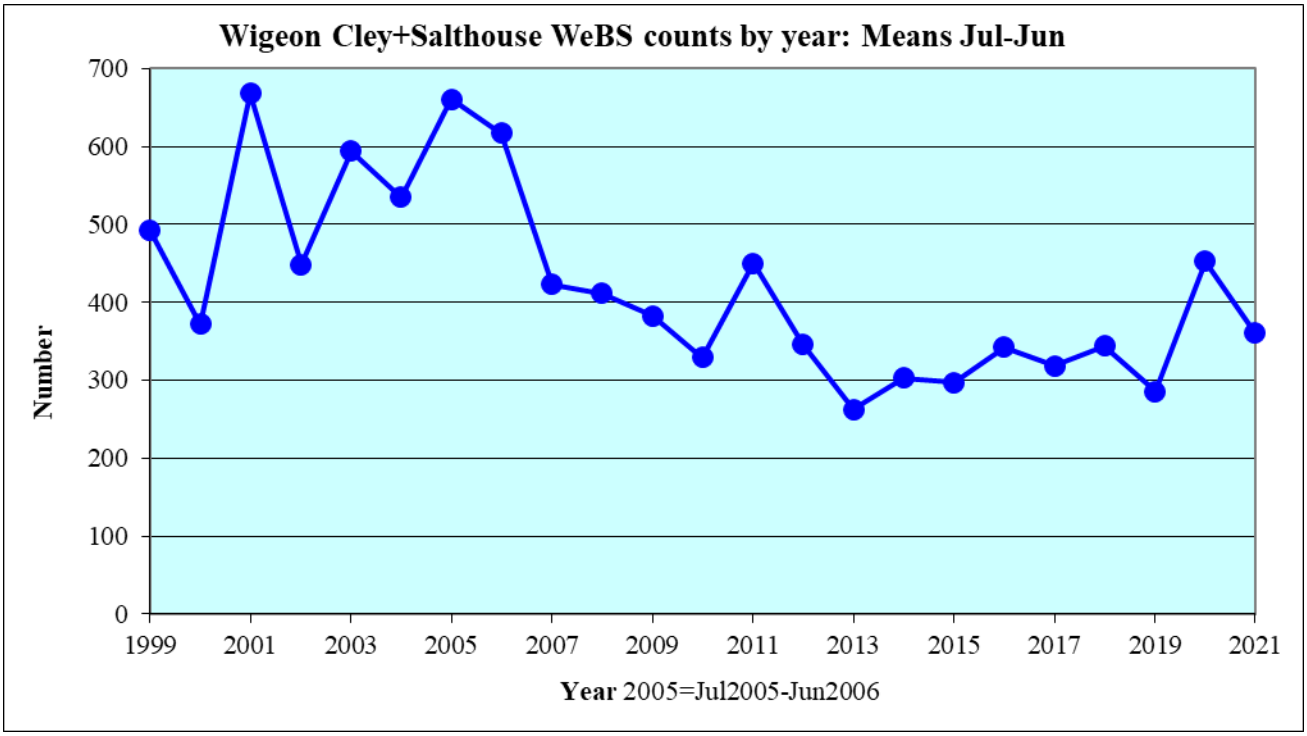


Counts have been averaged over the usual annual cycle of July to June. The overall trend has been for numbers of Shelduck to increase but there was a reduction in numbers over the years 2007-8 to 2013-14 and then again in 2021-22. The current Long-Term estimate of the change in numbers for the North Norfolk Coast SSSI is a reduction in numbers of 36%.

Wigeon

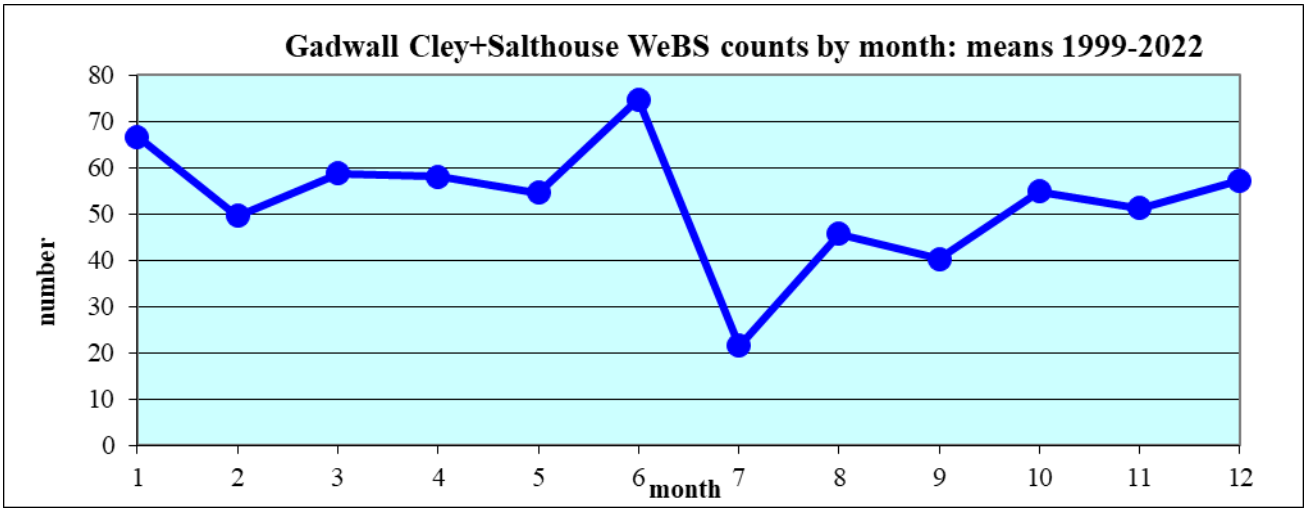


Wigeon are a winter duck that start arriving in September and initially concentrate in the saltmarshes of Blakeney Harbour then disperse to meadows and freshwater pools at Cley, Salthouse and Blakeney Freshes. Mean numbers at Cley and Salthouse peaked in midwinter at about 1000 birds. They were basically absent for five months. The numbers have clearly declined in midwinter but the pattern of occurrence seems relatively stable except that numbers in October have not declined whereas they have for other months.

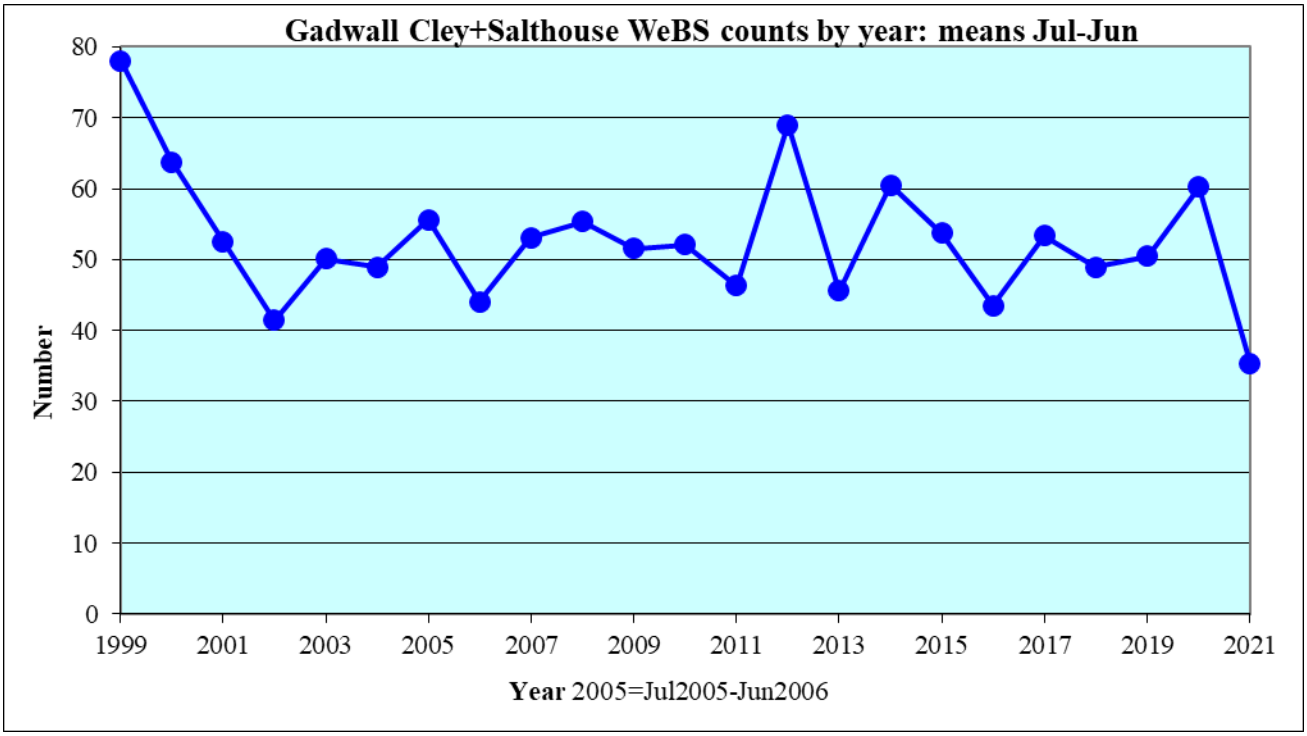


Counts have been averaged over the usual annual cycle of July to June. Numbers of Wigeon at Cley and Salthouse appear to have been increasing in the years to 2005/6 but then decreased markedly by over 50% from 2005/6 to 2013/14. Numbers counted have been relatively stable since.

Gadwall

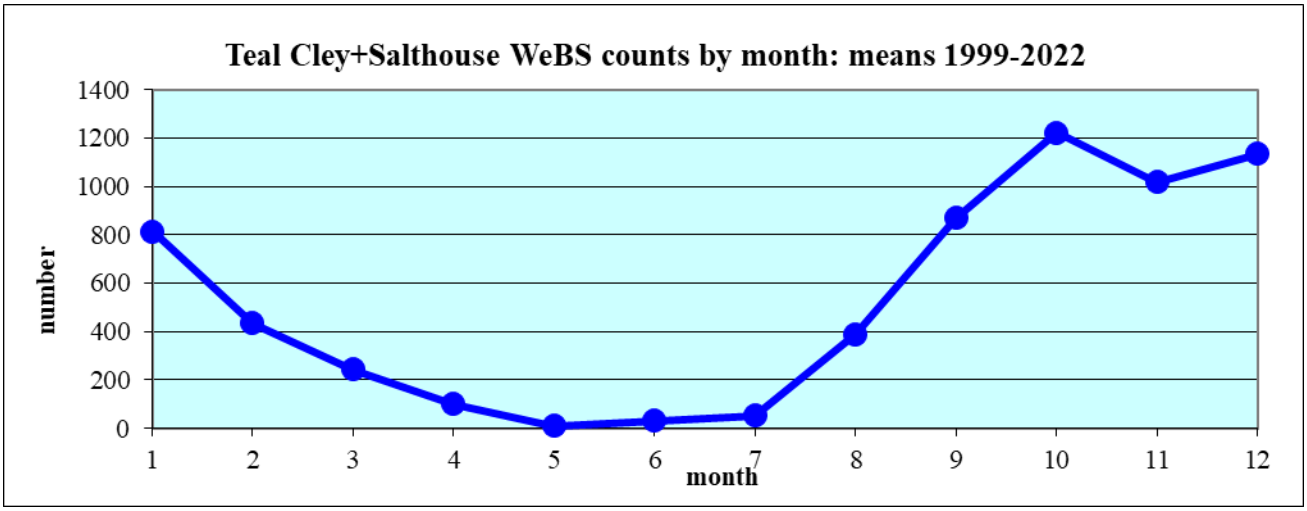


A resident duck but it appears that there is an exodus of birds in July to moult, apart from those females with ducklings. Mean numbers peaked in June at about 75 birds. The only change in the pattern of occurrence of Gadwall is a large drop in the numbers counted in May and June for recent years.

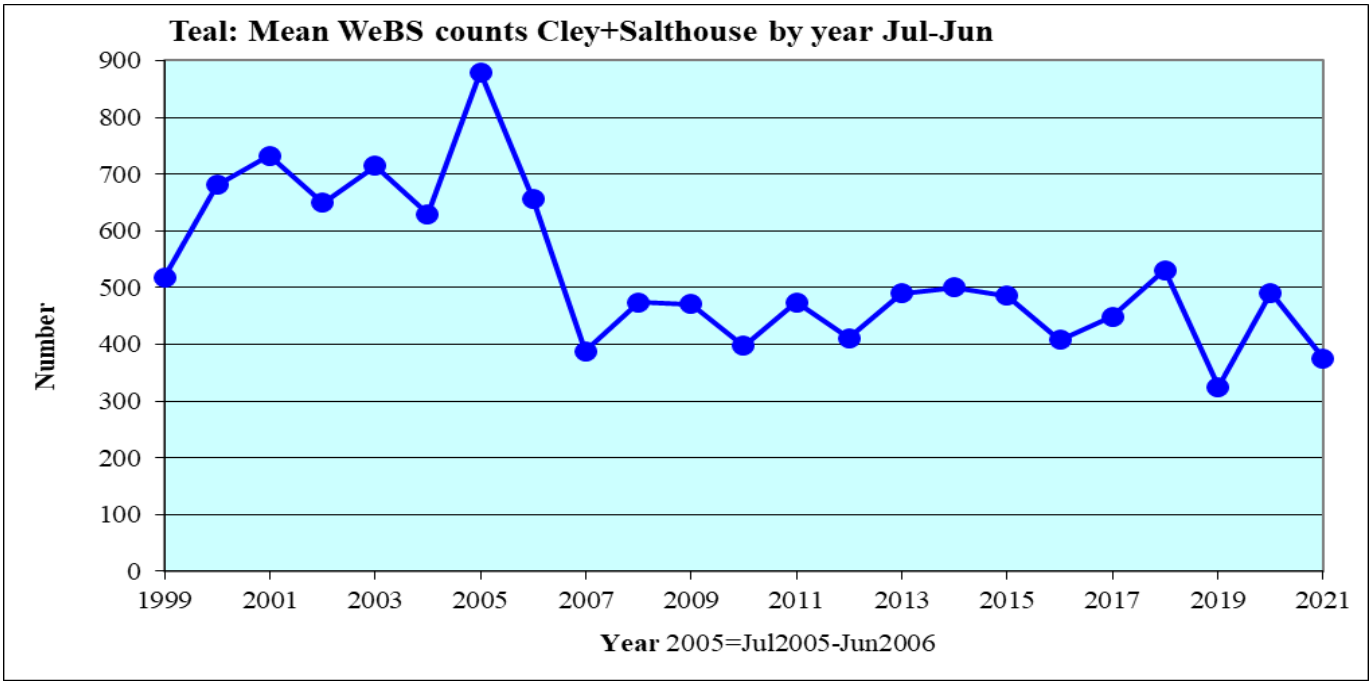


Counts have been averaged over the usual annual cycle of July to June. Count numbers were dropping at the start of the period but there does not appear to be any clear systematic change in numbers over the years since 2003/4.

Teal

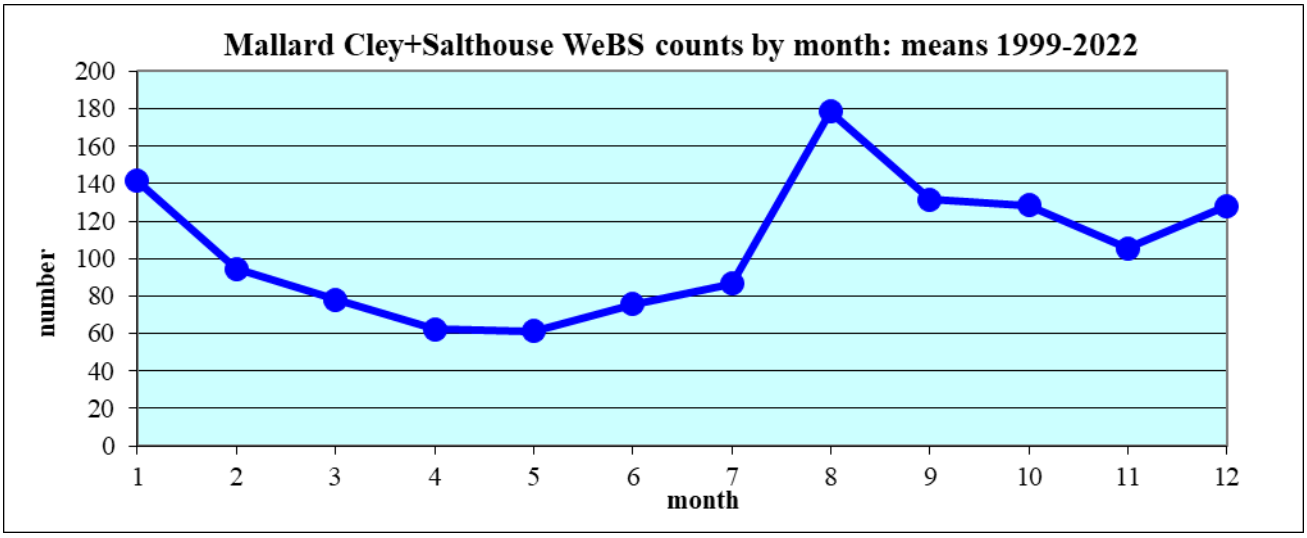


A winter duck with mean numbers that peaked at about 1200 birds in the autumn and early winter. The pattern of occurrence was relatively stable except that far more birds were present in September in the early years.

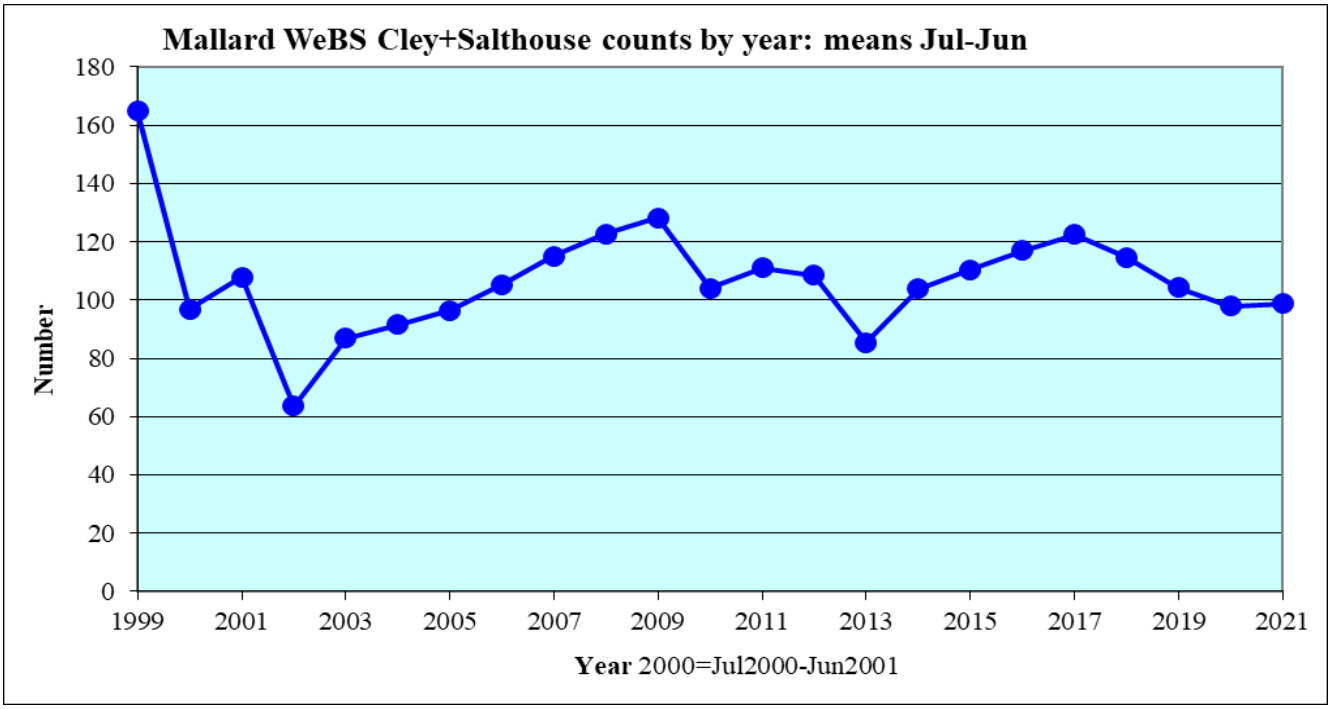


Counts have been averaged over the usual annual cycle of July to June. Numbers of Teal appear to have increased markedly in winter 2005/6 then decreased sharply the following two winters before stabilising at a level at least 25% lower than that of the early years.

Mallard

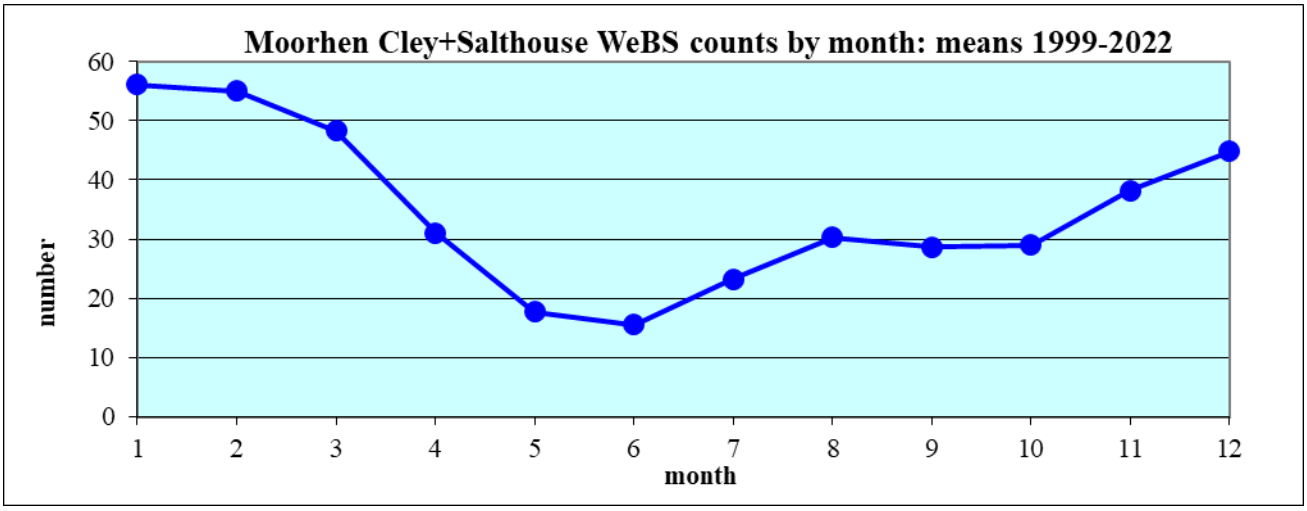


About 60 birds were counted in the breeding seasons and about twice as many in the autumn and winter months. The numbers of birds counted in the breeding season were relatively stable but fewer were counted in midwinter in recent years.

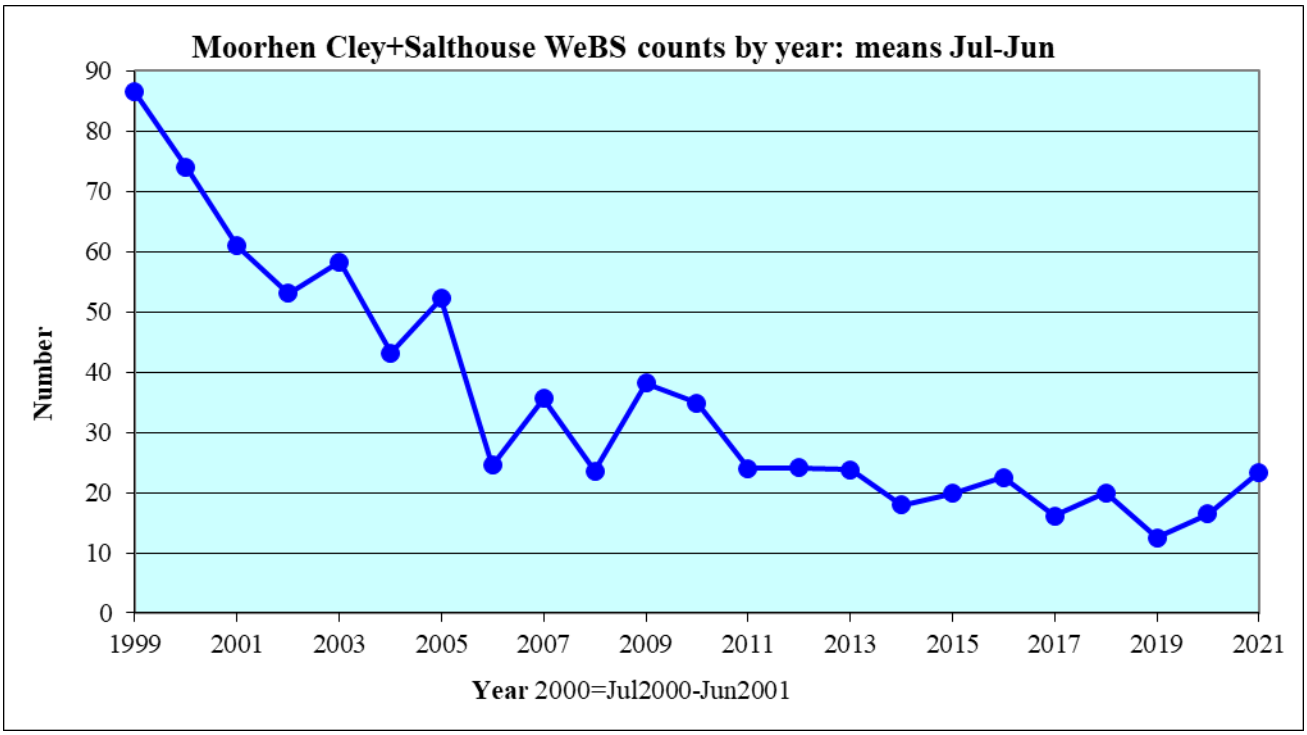


Counts have been averaged over the usual annual cycle of July to June. Numbers of Mallard counted decreased from 1999-2000 to 2002-2003, then recovered and have been relatively stable since.

Moorhen

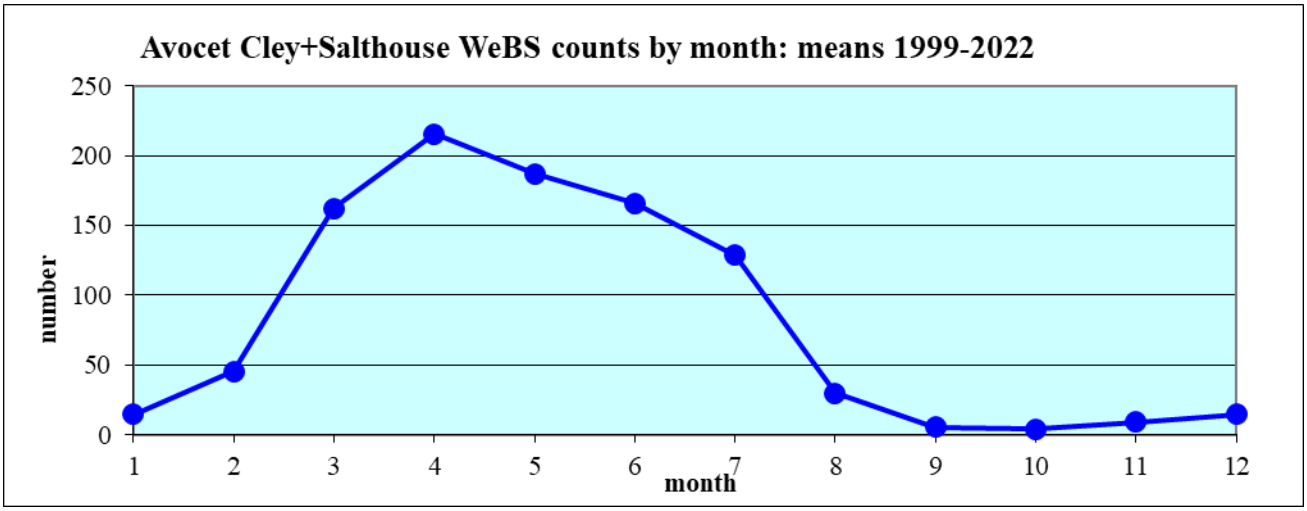


Numbers of Moorhen counted used to be much higher in late winter and in March. This was possibly due to birds leaving drains and ditches to feed in the meadows and becoming more visible. There has now been a clear large change in pattern of occurrence for Moorhens with no longer any large increase in the numbers counted during late autumn and midwinter.

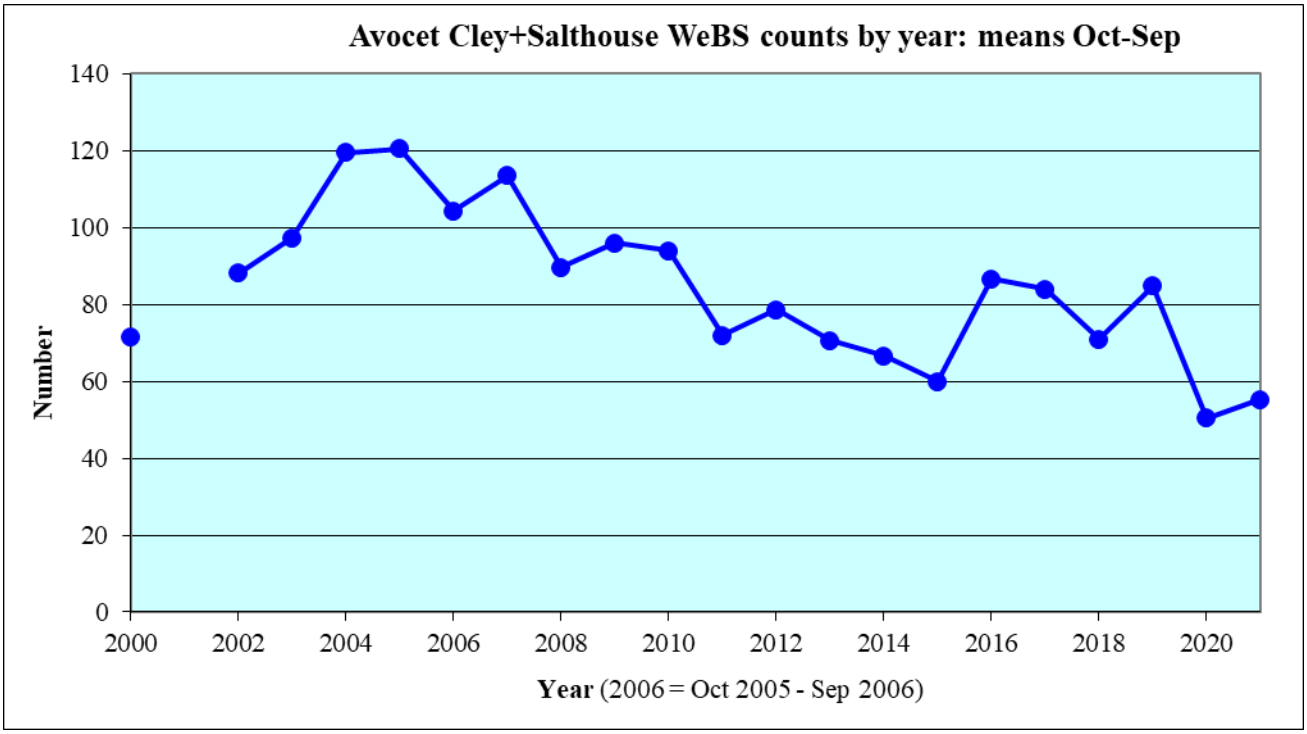


Counts have been averaged over the usual annual cycle of July to June. A very worrying decrease in numbers counted is evident. It appears that numbers are now less than 25% of those counted in 1999/2000.

Avocet

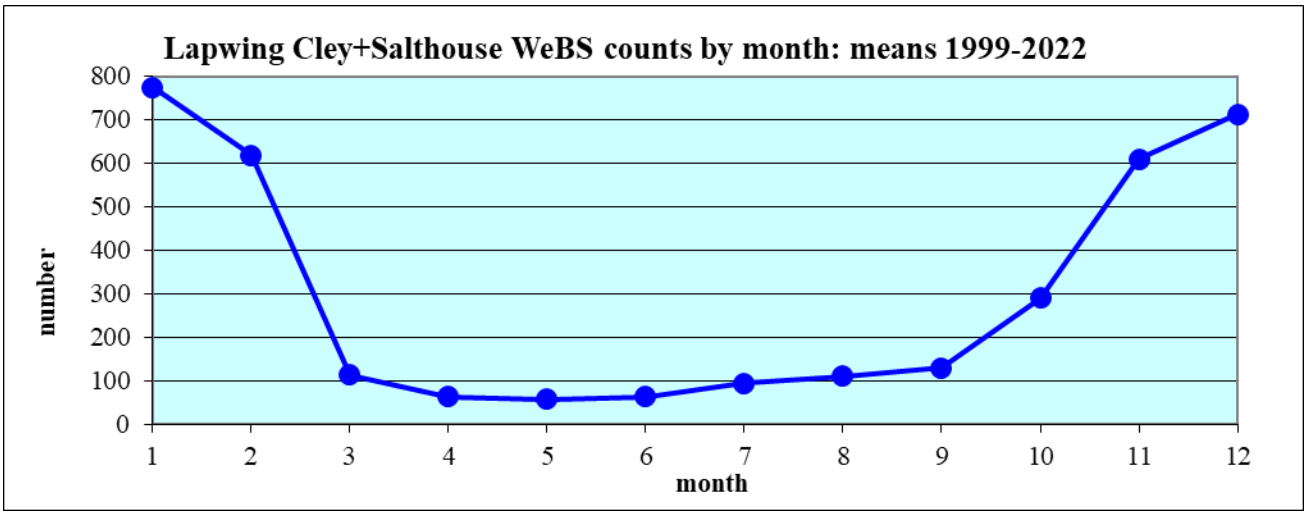


Avocets concentrate at Cley Marshes where the numbers are of national significance in the breeding season. Birds arrive in substantial numbers in March and numbers peaked in April and May at over 200 birds. In recent years birds have dispersed a little to also breed in the other local count areas. Virtually all of them leave to moult in the autumn with only a few returning afterwards to overwinter. Analyses are therefore based on an annual cycle from October to September. The pattern of occurrence was relatively stable over the years for this species.

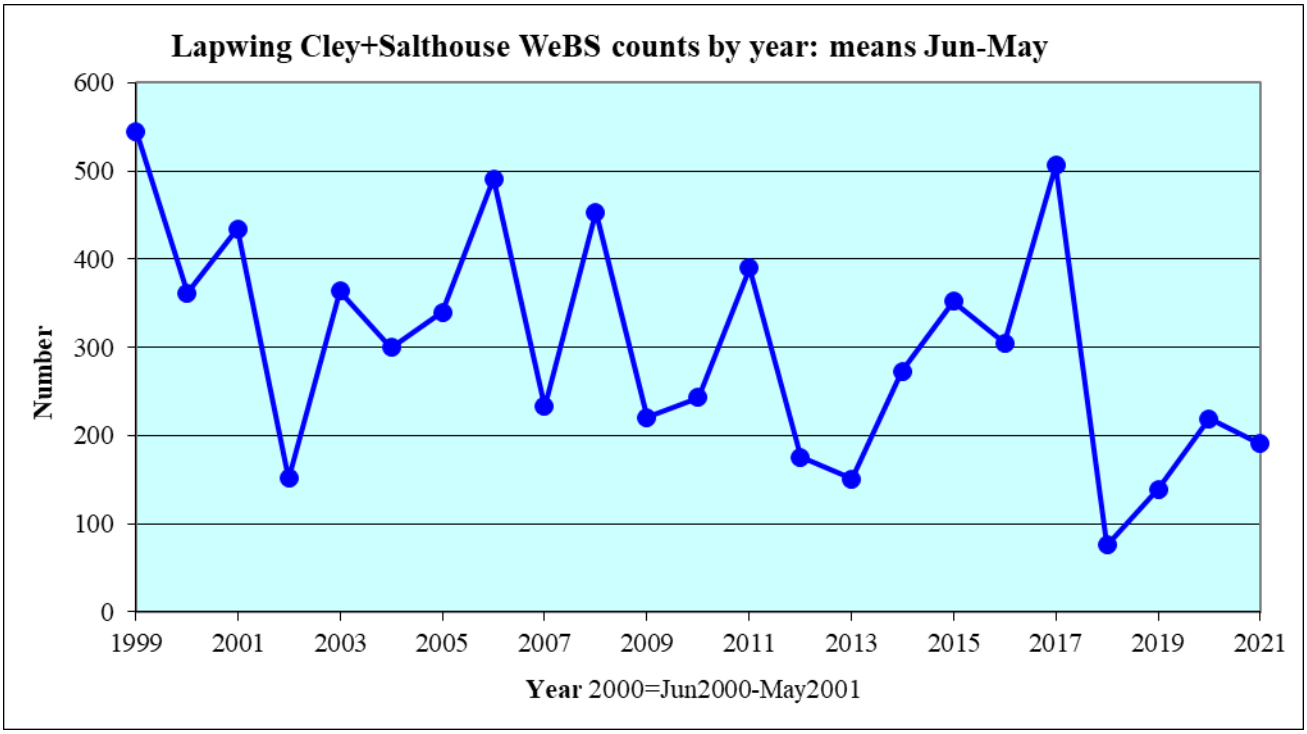


Total numbers of Avocets have been dropping since 2005-6 despite a partial recovery in the years from 2016-17 to 2019-20.

Lapwing

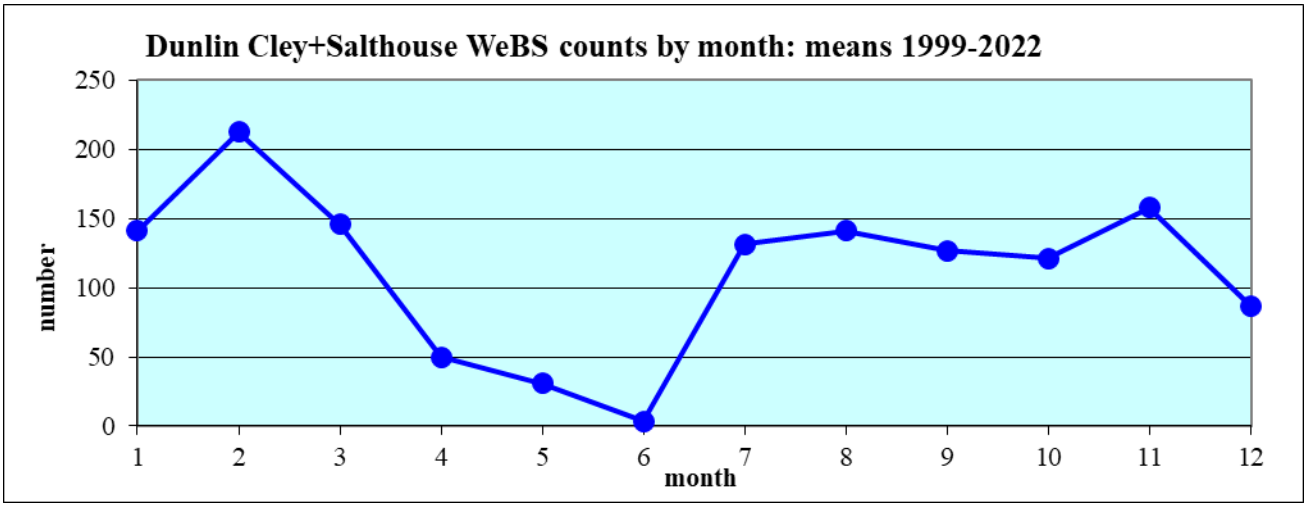


Mean Lapwing counts peaked in midwinter at over 700 birds. About 60 birds were counted during the breeding season. There does not appear to be any obvious large change to the pattern of occurrence over the years.

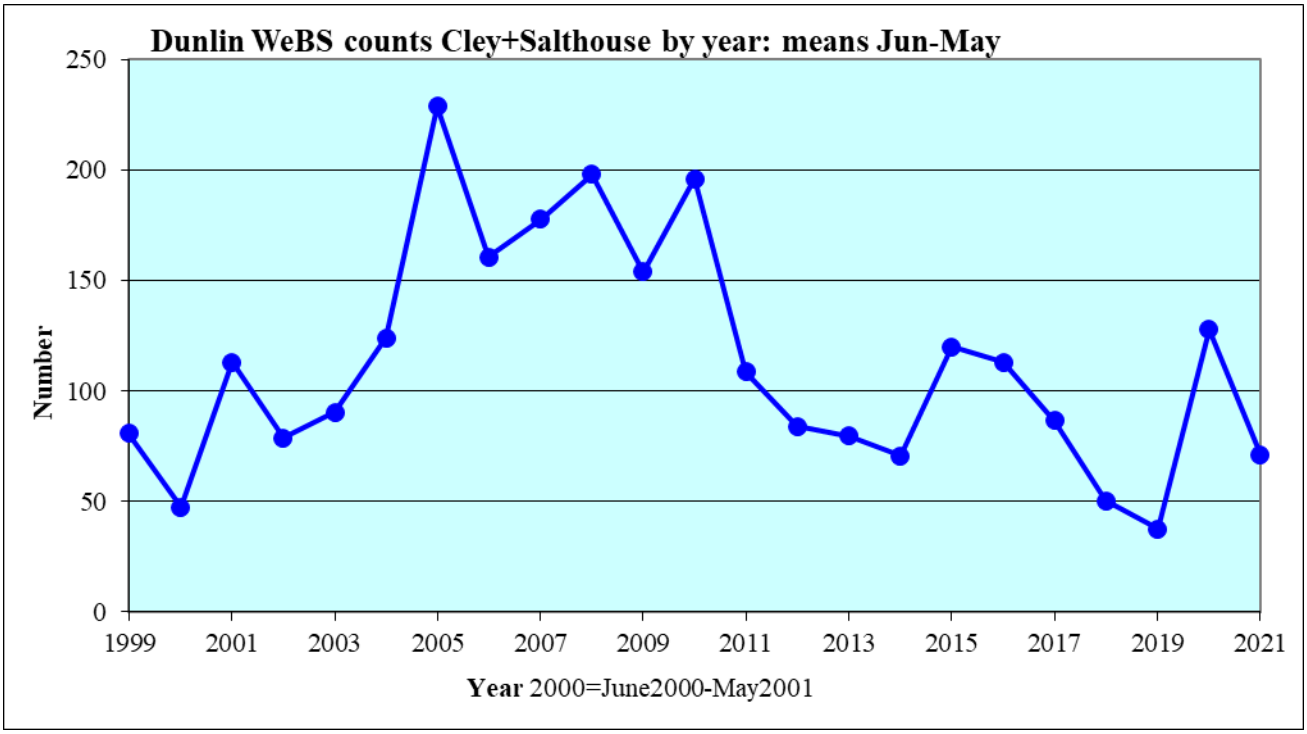


Counts have been averaged over the usual annual cycle for waders of June to May. Numbers counted have fluctuated markedly between years. Numbers overall seem to have decreased from 1999/2000 to 2013/14 then increased with particularly high counts in 2017/18 followed by extremely low counts in 2018/19 and then a recovery. The overall trend is for numbers to have decreased over the period.

Dunlin

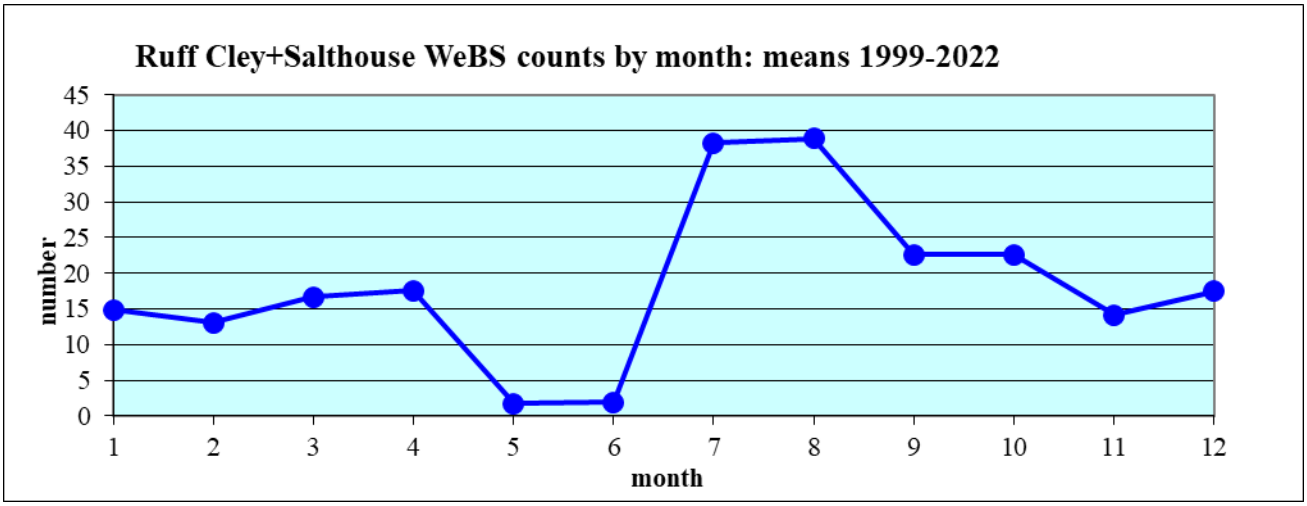


Virtually no Dunlins were present in June. Mean counts have peaked in February and in November. Dunlin is one of the three wader species where there has been a noticeable change in pattern of occurrence over the years. Numbers seen on autumn passage have decreased markedly but remained similar in late winter and during the spring.

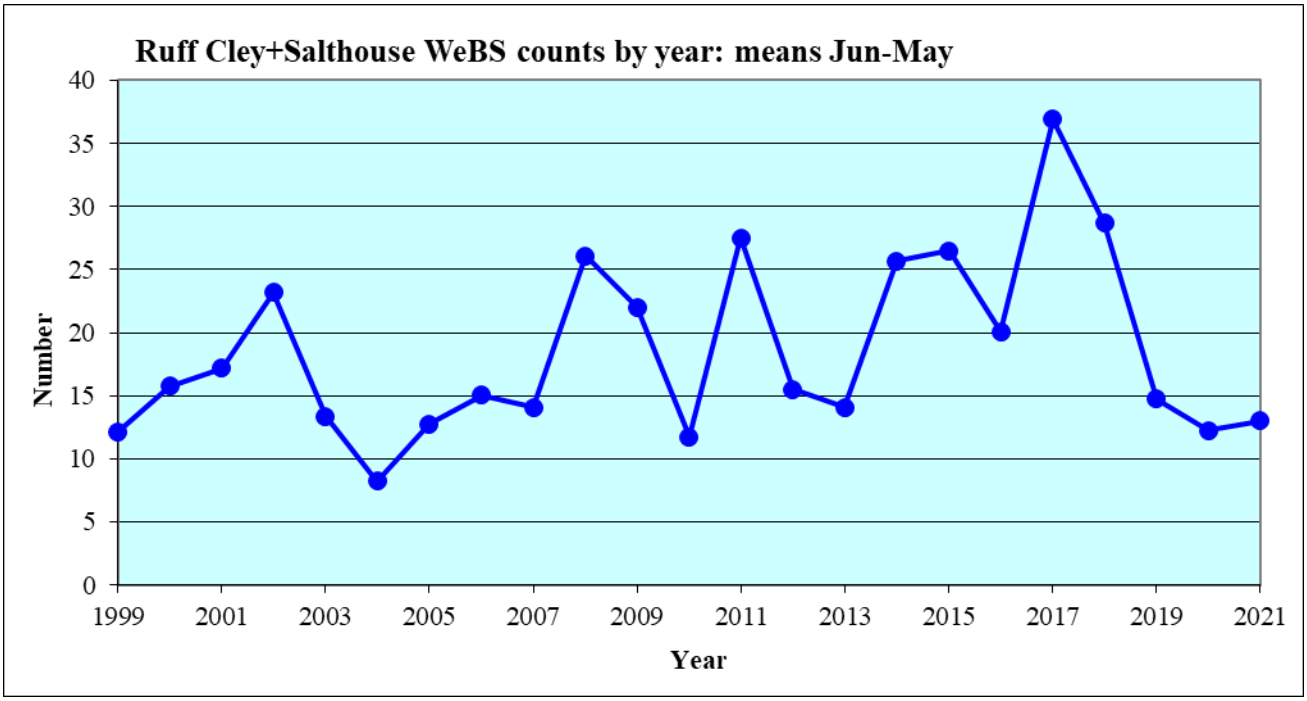


Counts have been averaged over an annual cycle of July to June. Mean numbers increased for the years 1999/2000 to 2005/6 then decreased back towards the level of the turn of the century. The current Long-Term estimate of the reduction in numbers for the North Norfolk Coast SSSI is 37%.

Ruff

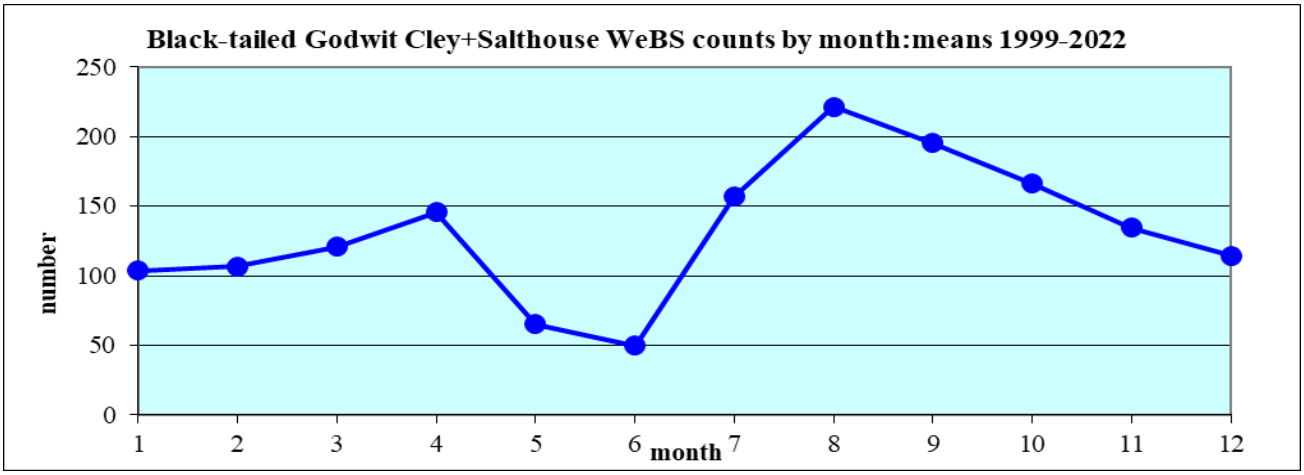


Ruff has primarily been an autumn passage migrant when about 40 birds were counted. Typically, about 20 birds were counted in winter and similar small numbers were present during spring migration. There has been a large change in the pattern of occurrence for this species. In the early years numbers on spring passage were comparable to those on autumn passage and the highest counts in fact came in midwinter. Numbers counted in autumn were far higher than those counted on spring passage and in winter for later years.

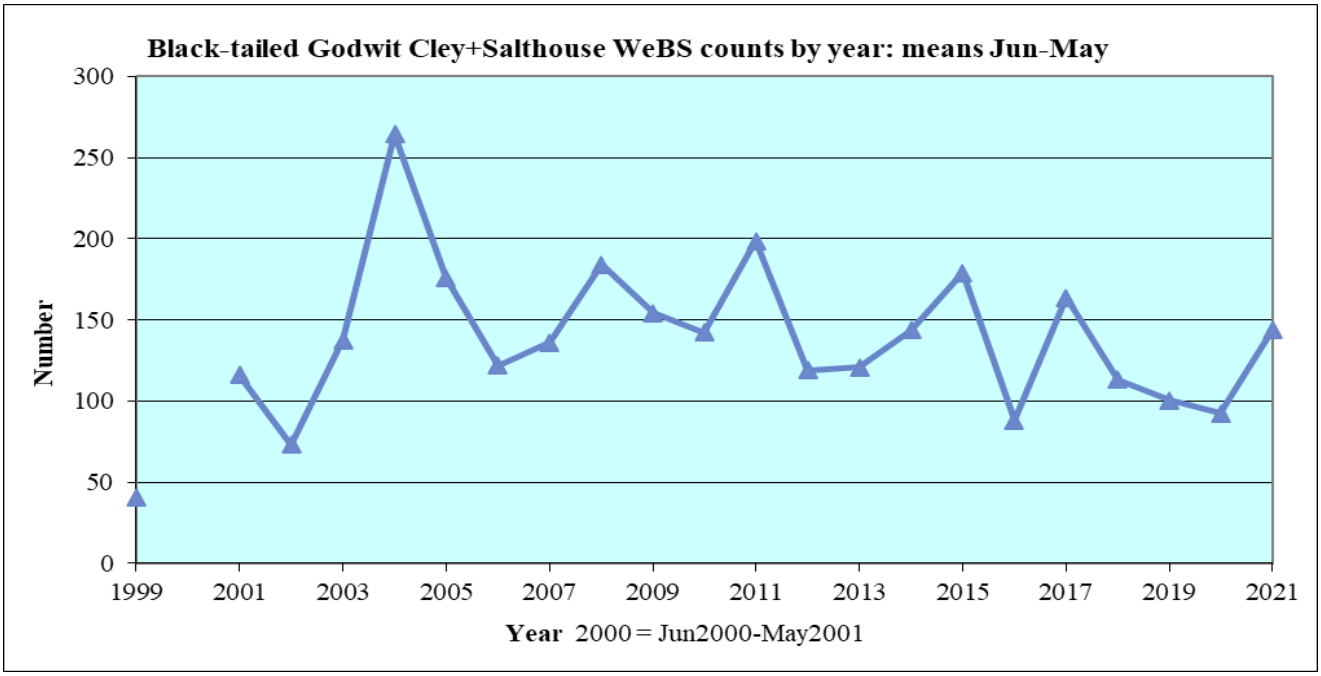


Counts have been averaged over an annual cycle of June to May. It appears that there was a large drop in numbers of Ruff counted from 2002/3 to 2004/5, that there have been wild fluctuations in numbers since, that the overall trend had been for them to increase to 2017-18 but then decrease sharply.

Black-tailed Godwit

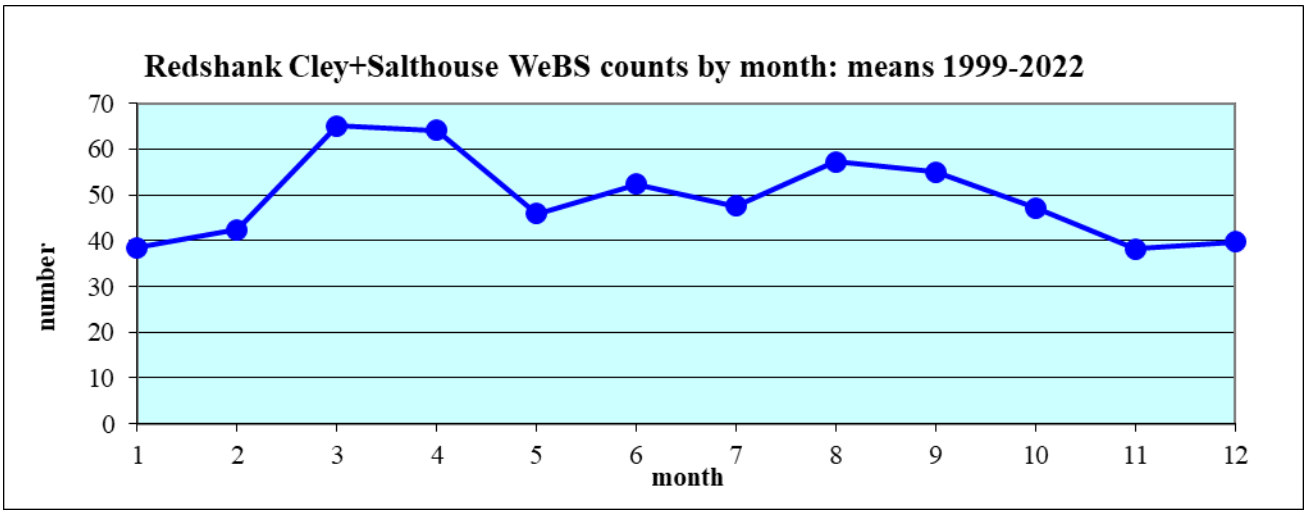


Numbers have been at their lowest in June when the first failed breeders appear. The highest mean counts were obtained in August when autumn migration peaks. The majority of the birds roost on Cley Marshes feeding in the scrapes, meadows (when wet) and lagoons there and in autumn in stubble fields nearby. About 100 birds were counted in midwinter and numbers were just a little higher during spring migration. Some first-summers are present in May when the adults are on the breeding grounds in Iceland. Black-tailed Godwit is another wader whose pattern of occurrence has changed a lot during these years. Numbers counted during spring passage used to be similar to those counted on autumn passage but are now substantially lower.

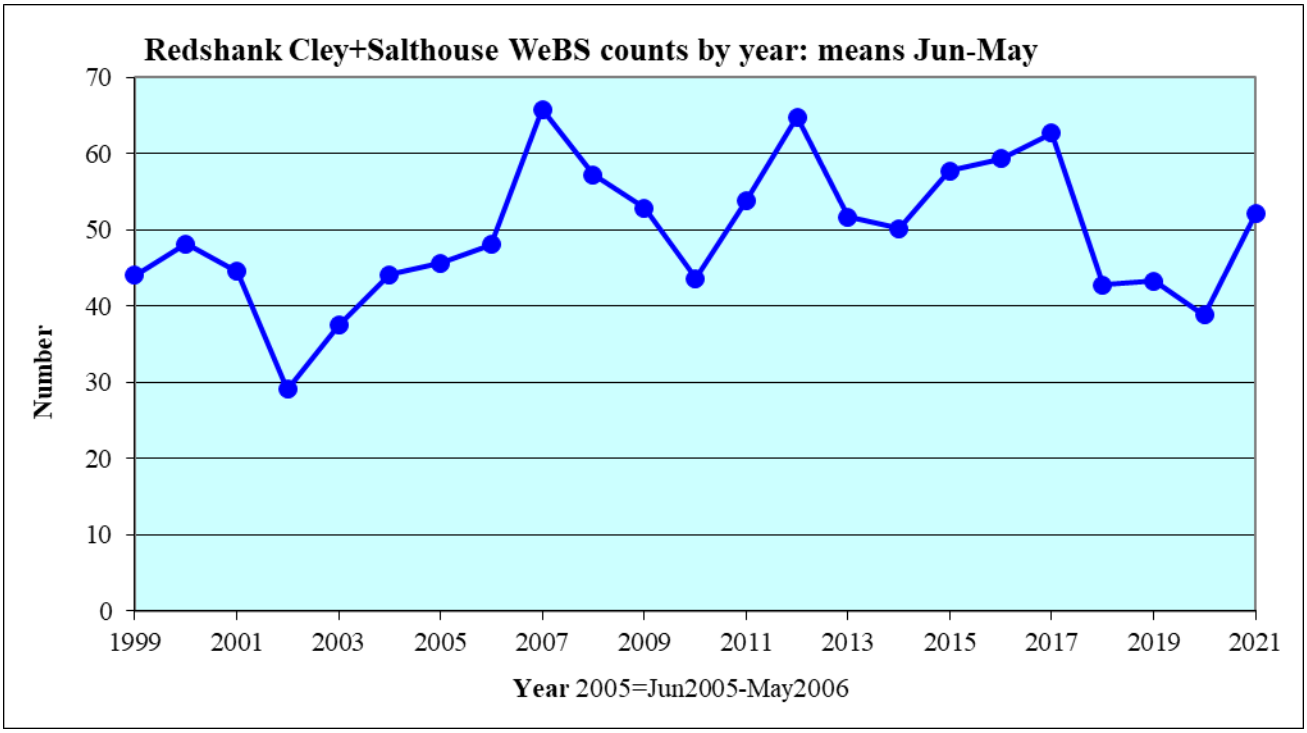


Counts have been averaged over the usual annual cycle for waders of June to May. Total counts peaked in 2004/5 at over 250 birds/month when there were high numbers during both the spring and autumn migrations and birds occurred in significant numbers at Salthouse Marshes as well as at Cley Marshes. Mean counts for years since have varied between 100 and 200 birds/month with a decreasing trend as the years have passed.

Redshank



Mean numbers counted peaked in March and April at just over 60 birds and in August and September at just under 60 birds. On average about 50 birds were present in the breeding season and 40 birds were present in midwinter.



Counts have been averaged over the usual annual cycle for waders of June to May. Numbers dropped badly in 2002/3 then had an increasing trend through to 2017/18 before falling back again.

Mean counts for each species

Species	Mean monthly count	Mean count for peak month	Peak Month
Shelduck	74	111	March
Wigeon	421	1006	January
Gadwall	53	75	June
Teal	526	1222	October
Mallard	106	178	August
Moorhen	35	56	January
Avocet	82	215	April
Lapwing	303	775	January
Dunlin	112	212	February
Ruff	18	39	August
Black-tailed Godwit	132	221	August
Redshank	50	65	March

Mean counts are for the period from May 1999.

Estimated changes in numbers over the ten-year period 2008/9 to 2018/19

Species	National 10-year change	Cley+Salthouse 10-year change
Shelduck	-11%	-11%
Wigeon	-6%	-46%
Gadwall	+10%	+1%
Teal	+7%	-22%
Mallard	-15%	+7%
Moorhen	-26%	-46%
Avocet	+20%	-33%
Lapwing	-9%	-17%
Dunlin	-7%	-50%
Ruff	-1%	+82%
Black-tailed Godwit	+26%	-22%
Redshank	-9%	+5%

Getting further information on WeBS counts

These counts form part of the national Wetland Bird Survey (WeBS) which involves volunteer birdwatchers making monthly counts of non-breeding waterbirds across the UK and sending them to the British Trust for Ornithology. WeBS is a partnership between the British Trust for Ornithology, the Royal Society for the Protection of Birds and the Joint Nature Conservation Committee (the latter on behalf of the Council for Nature Conservation and the Countryside, the Countryside Council for Wales, Natural England and Scottish Natural Heritage), in association with the Wildfowl and Wetlands Trust. The data collected are used to assess the size of waterbird populations, determine trends in numbers and distribution, and assess the importance of individual sites for waterbirds, in line with the requirements of international conservation Conventions and Directives. The counts made at Cley and Salthouse are part of the overall count made for the North Norfolk Coast SPA site, which has SSSI status, and is a site of national importance for several of the species counted.

The latest national report, 5-year and 10-year trends for counts for the North Norfolk Coast SPA and other detailed information can be found at

https://www.bto.org/our-science/projects/wetland-bird-survey

David Wileman 7-3-23.