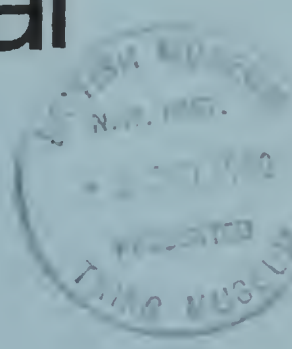


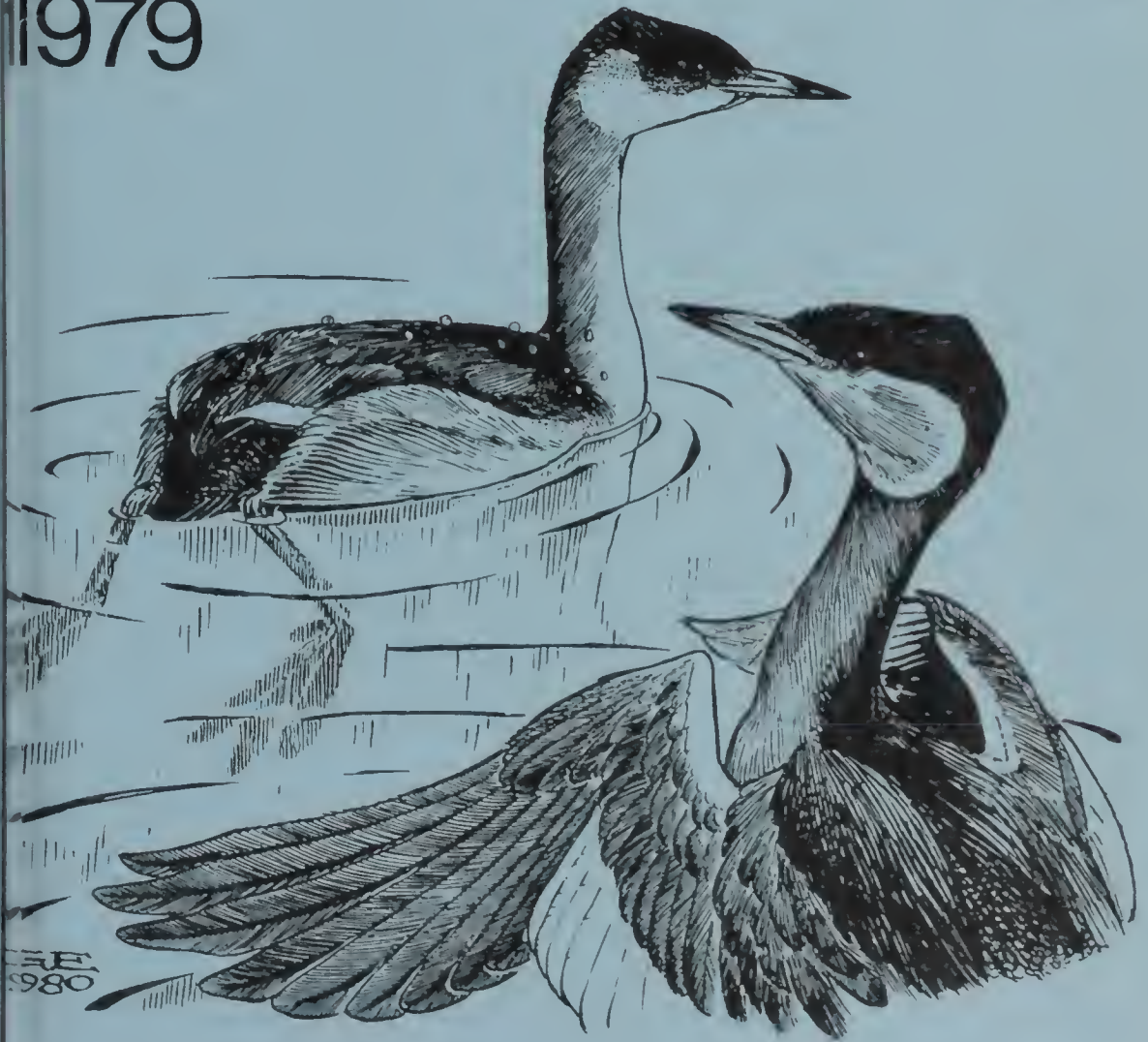
NORFOLK

TGS 138

# Bird & Mammal Report



1979



Published by The Norfolk Naturalists Trust  
and The Norfolk & Norwich Naturalists Society

Vol. 25 Part 3

ISBN 0375 - 7226

# Norfolk Naturalists' Trust Properties

Date Acquired			Acreage		Status*
<b>On the Coast</b>					
1926	Cley Marshes	...	435	Gift	S.S.S.I.†
1937	Duchess's Pightle, Burnham Overy	...	1	Gift	---
1937	Great and Little Eye, Salthouse	...	10	Purchased	S.S.S.I.
1945	East End of Scolt Island	...	76	Purchased	N.N.R.
1955	The Eye, Salthouse	...	21	Purchased	S.S.S.I.
1965	Holme Dunes	...	400	Purchased, Gift & Agreement	S.S.S.I.
1971	Salthouse Marshes	...	200	Agreement	S.S.S.I.
<b>Broadland</b>					
1928 and 1974	Starch Grass (Martham)	...	43½	Purchased & Gift	S.S.S.I.
1930	Alderfen Broad	...	72	Purchased	S.S.S.I.
1945 and 1969	Hickling Broad	...	861	Purchased	N.N.R.
1945	Hickling Broad	...	500	Leased	N.N.R.
1945	Barton Broad	...	355	Half Gift & Half Purchased	S.S.S.I.
1952	Barton Broad	...			S.S.S.I.
1948	Surlingham Broad	...	253	Purchased	S.S.S.I.
1949	Ranworth Broad	...	124	Gift	N.N.R.
1949	Cockshoot Broad	...	12	Gift	N.N.R.
1964	Firs Marsh, Burgh St. Peter	...	2½	Leased	---
1971	Martham Broad	...	103	Leased	S.S.S.I.
1972	Hardley Flood	...	90	Leased	---
1972	Chedgrave Common	...	10	Leased	---
1974	Barton Marshes	...	10¼	Gift	---
1979	Upton Fen	...	130	Purchased	S.S.S.I.
<b>Breckland</b>					
1938	East Wretham Heath	...	362	Purchased & Gift	S.S.S.I.
1942	Weeting Heath	...	343	Gift	N.N.R.
1949	Thetford Heath	...	250	Gift	N.N.R.
<b>Other Areas</b>					
1957	Thursford Woods	...	25	Gift	---
1960	Hethel Old Thorn	...	⅞	Gift	---
1961	Scarning Fen	...	10½	Gift	S.S.S.I.
1962	Hockham Fen (Cranberry Rough)	...	20	Purchased	S.S.S.I.
1963	Roydon Common	...	140	Purchased	S.S.S.I.
1966	Stoke Ferry Fen	...	25	Agreement	S.S.S.I.
1968	Lenwade Water	...	37	Agreement	---
1968	Dickleburgh Pightle	...	1	Agreement	---
1972	Smallburgh Fen	...	19	Leased	S.S.S.I.
1972	Ringstead Downs	...	26	Agreement	S.S.S.I.

(Continued on inside back cover)

# Norfolk Bird Report - 1979

**Editor:** MICHAEL J. SEAGO

*County Recorders:* D. A. DORLING & P. R. ALLARD

*Editorial Assistants:* P. R. ALLARD, A. D. BOOTE, G. E. DUNMORE,  
H. R. RAMSAY and Dr M. P. TAYLOR

---

Editorial	96 — 97
Survey of the Yare Basin	98 — 102
A Wild Goose Storm Disaster	102 — 104
Ringing Report	105 — 108
Classified Notes	109 — 128
Contributors	129

---

# Norfolk Mammal Report - 1979

**Editor:** REX HANCY

---

Editorial	130
Beavers in Norfolk, their past and possible future	131 — 135
Classified Notes	135 — 141
Contributors	142

---

Published jointly by

THE NORFOLK NATURALISTS TRUST, 72 Cathedral Close, Norwich NR1 4DF  
(Telephone 25540) and

THE NORFOLK & NORWICH NATURALISTS SOCIETY, Castle Museum,  
Norwich (*Transactions* Volume 25 Part 3).

# NORFOLK BIRD REPORT 1979

## Editorial

The Council of the Norfolk Naturalists Trust, in co-operation with the Norfolk & Norwich Naturalists Society, is pleased to present the annual report on the birds of Norfolk.

**Review of the Year:** Surprisingly, three unseasonal sea-birds appeared on the opening day of the year: Storm Petrel, Arctic Skua and Great Skua — heralding a year full of ornithological interest and contrast. The year will no doubt be remembered by many for the exceptional cold weather in January and especially February. For example temperatures began falling over the Baltic on 13th February and by the next day readings there were between  $-10^{\circ}$  and  $-25^{\circ}\text{C}$  whilst gale or storm force ENE winds and blizzard conditions extended from the southern Baltic across the North Sea to East Anglia.

These severe conditions resulted in an unprecedented number of Red-necked Grebes arriving in this country; in Norfolk Black-throated Divers, Slavonian Grebes, Red-breasted Mergansers, Goosanders and Smew and several species of sea-duck also appeared in above-average numbers. Many of these birds frequented inland localities, including some unusual sites such as village ponds and were often relatively tame.

The weather on the Continent also produced high numbers of Bean Geese and Glaucous Gulls and raptors such as Buzzards and Rough-legged Buzzards although the full picture of the latter two species was not totally evident until the departure of wintering birds in April and May. The bird of prey which will be principally remembered in 1979, however, was the Hen Harrier, which continued to build-up in abnormal numbers from December in the previous year. The only rarities turning up as a result of the weather were 3 Great Bustards from Eastern Europe or Russia which disappeared virtually as soon as they had arrived, to the frustration of many local bird-watchers.

The early spring migration, which did not really commence until the last week of March, was unusual in that whilst winter visitors were departing eastward and summer visitors were appearing, birds especially Starlings were still arriving from the Continent. For example, 9000 Starlings flew *west* at Sheringham on 1st April and on the same day at Winterton Starlings were migrating towards all four points of the compass at the same time, although mostly south. Presumably such unusual movements were as a result of displacement caused by the earlier severe weather. This period produced records of White Stork, Crane and an early Red-footed Falcon.

The second half of April was cool and this weather continued into the first week of May. Despite this another Red-footed Falcon and a Tawny Pipit appeared on the East Coast and a Black-headed Bunting (an addition to the county list) on the North coast. Assuming the bunting was a genuine vagrant from south-eastern Europe, and not an escape, the bird certainly looked — and no doubt felt — totally out of place in the cold weather on the coast at that time.

May in Norfolk lived up to its reputation and 1979 was probably one of the best years ever for rarities. Apart from a wide selection of waders on the Cley reserve including Wilson's Phalarope, the area produced Purple Heron, Little Bittern, Little Egret, Crane and Rose-coloured Starling. Nearby an Alpine Swift was at Weybourne and a very tame Red-footed Falcon at Kelling Heath. The East Norfolk coast was not to be outshone with Night Heron and a third Red-footed Falcon at Winterton.

The month of June undoubtedly belonged to Holme which produced a succession of vagrants including Red-rumped Swallow and Scarlet Rosefinch.

In contrast to the first half of the year, the second half was disappointing despite a number of unexpected visitors. In July a Lesser Grey Shrike (possibly a straggler from the spring) was discovered at Ringstead and the bird remained in the area six weeks. In addition, a lucky observer whilst standing in his garden saw a black Stork flying over Breydon.

August produced the second and third additions to the county list: Great White Egret at Hickling followed by Marsh Sandpiper at Cley which kept the warden fully occupied. The second half of the month saw a trickle of passerine migrants and the month concluded with 2 Wilson's Phalaropes at Wisbech Sewage Farm.

As in previous years, westerly winds predominated in September resulting in a now familiar lack of drift migrants until the end of the month. Nevertheless September produced a total of 3 Pectoral Sandpipers, Wilson's Phalarope at Holme and White-rumped Sandpiper at Breydon. The 22nd saw the largest sea bird movement of the autumn: petrels, skuas and shearwaters all being involved. The only rare passerines which appeared were Short-toed Lark and Richard's Pipit near the month-end.

October produced further records of these species, but despite several falls of Thrushes and other migrants the hoped-for far-eastern rarities did not appear. The bird of the month, a well watched warbler at Weybourne, may turn out to be a Blyth's Reed Warbler but a decision as to the correct identification of this difficult species has yet to be made by British Birds Rarities Committee.

November and December were mostly unexceptional apart from 3 wintering Cranes in Broadland and Richard's Pipit at Cley at the year-end.

**Acknowledgements:** Thanks are due to G.M.S. Easy for the cover drawings of Red-necked Grebes and Hen Harriers and for text illustrations; also to P. R. Allard, B. Bland, J. Buxton, R. J. Chandler and Pamela Harrison for photographs and vignettes; to Holme Bird Observatory/N.O.A. for records; to the Norfolk Naturalists Trust Wardens; to the National Trust (Blakeney Point); to the Nature Conservancy Council (Scolt Head, Holkham, Bure Marshes (Woodbastwick) and Hoveton Great Broad); to Cambridge Bird Club; to Nar Valley Ornithological Society; to P. R. Allard and D. A. Dorling (for compiling the ever increasing annual record cards); to J. T. Fenton, Miss P. Ibbett, P. D. Kirby, Mrs P. Rix and Mrs S. F. Seago for valuable assistance and to all other contributors.

**Recording:** Records for the 1980 Report should be sent *by the end of January* to Michael J. Seago, 33 Acacia Road, Thorpe St Andrew, Norwich NR7 0PP. Contributors are requested to submit notes in the order followed in Dr K. H. Voous' *List of Recent Holarctic Bird Species* (1977). In order to minimise the work involved, records will not normally be acknowledged. The names of all contributors will be included in the report.

Field descriptions of semi-rarities, as listed in the 1975 and 1978 Reports (copies of such lists may be obtained from the Editor) should also be submitted as such records are considered by the County Records Committee (P. R. Allard, G. E. Dunmore, D. J. Holman, S. C. Joyner and J. Kemp) prior to publication. Any records of rare birds to be considered by British Birds Rarities Committee should be submitted with full details as soon as possible after observation and not left until the end of the year. It will be appreciated that delays in receiving observations create considerable problems for the Recorders, the Records Committee and the printers. For several reasons it is essential that publication is achieved by early September.

# SURVEY OF THE YARE BASIN

(P. D. Round, Royal Society for the Protection of Birds)

*An ornithological survey of the Yare Basin was carried out in the spring and summer of 1979. The following extracts are taken from the Survey with acknowledgement to the R.S.P.B.:*

**T**HE YARE BASIN is one of the few remaining extensive tracts of damp, low-lying grassland (grazing marsh) in Britain. Much of the area lies below 1m with a water table about  $\frac{1}{2}$ m below the ground surface. Until very recently, the pattern of land-use had probably changed little since the area was originally enclosed by a network of drainage ditches some two hundred years ago.

With increasing land prices and drainage subsidies, there is pressure on the farmer to increase agricultural productivity and the last fifteen to twenty years have seen a gradual increase in the areas of the Yare Basin that have been drained and converted to arable. As a result of the Yare Basin Flood Control Study (1977) it is now proposed to build a barrier near the mouth of the River Yare. This would have the effect of preventing all foreseeable tidal flooding upstream and could be expected to bring about an increase in the rate of 'marsh improvement' and drainage.

Areas of damp and wet pastureland are of high scientific interest for their predominantly wetland animal and plant communities: It is now a matter of national concern that many formerly widespread species have become scarce or restricted in range owing to the reclamation of wetlands (NCC Third Report, 1976-77).

The main objectives of the survey were:

- i) to determine the numbers and distribution of selected species of breeding water-birds on the Yare Basin.
- ii) to examine these in relation to land-use and drainage.
- iii) to identify those areas of greatest importance for breeding waterbirds.
- iv) to assess the possible implications of a barrier scheme upon the ornithological interest of the area.

## **The Study Area**

The Yare Basin occupies about 20,000 ha and is drained by three principal rivers, the Yare, Bure and Waveney which have total catchment area of over 3000 km<sup>2</sup>. The soil is predominantly alluvium with small areas of peat around the margins. Much of the land area lies below 1m O.D. at a lower level than the strongly tidal rivers which are embanked. Drainage takes place through a network of dykes and ditches which, through collector drains, lead to pumping stations. The water table is only about  $\frac{1}{2}$ m below the surface and some areas are subject to intermittent fluvial or tidal flooding. These factors, combined with a complex pattern of land ownership and poor access have imposed constraints on the type of land use. Most of the area consists of unimproved pasture, used mainly for the summer grazing of beef cattle, young dairy stock and a few sheep. In winter the livestock are kept off the area.

In recent years, several farmers have carried out independent drainage schemes in which the water table has been lowered to about  $1\frac{1}{2}$ m below the ground surface. Arable farming (largely wheat) has become widespread, and of the 10,225 ha covered during this study, about 1720 ha. were arable.

Between the rivers and their embankment lie narrow strips of marshy ground known as 'ronds'. The most extensive ronds lie along the lower Bure, on the Yare in the vicinity of Chedgrave Marshes and along the River Waveney and occupy about 392 ha. They may be grown up with reeds, which are cut for thatch or open areas with saltmarsh vegetation especially scurvy-grasses and shallow pools.

## Methods

Fieldwork was carried out between 5th April and 25th June 1979. All areas were visited once and some 3000 ha along the south side of the lower Bure and along the lower Yare and Waveney was covered on 2 occasions owing to its relatively high ornithological interest.

## Breeding Waterbirds

**Mute Swan:** A total of 49 breeding pairs was recorded. Only 2 nests were found on the rivers. The remainder were all situated on the dykes intersecting the grazing marshes, or in a few cases on permanent pools. They were most concentrated around Chedgrave and Haddiscoe Marshes. In addition 240 non-breeders were found, though this total probably included a few non-breeding territorial pairs as well as some failed breeders. The largest flock was one of 43 birds feeding on young cereal near Acle in April. Although the size of the Norfolk breeding population has remained approximately constant over the last 20 years, there has been a marked change in distribution with more birds nesting on the grazing marshes and many fewer on the Broads and rivers.

**Mallard:** 433 males were recorded. Although fairly evenly scattered, they tended to be most concentrated around Reedham and on Chedgrave Island where numbers were probably augmented by semi-domesticated stock.

**Gadwall:** Eleven probable breeding pairs recorded. In most cases males and females were found associating together as single pairs.

**Garganey:** Three pairs, a single male and a single female were recorded in five different areas. In four of these areas the sightings were made during April and the first week in May and were probably birds on passage. A pair was present on Limpenhoe Marshes 3rd June.

**Shoveler:** At least 34 males were recorded, over a fifth being concentrated in Burgh Castle Marshes where 7 broods of small young (44 ducklings in total) were also found in late May — the only positive proof of breeding in the study area. Burgh Castle area may have been particularly favoured because of the preponderance of wide ditches, densely fringed with emergent aquatic plants. The Yare Basin is clearly of national importance for this species.

**Pochard:** Three broods were found on Chedgrave Marshes and a fourth brood at Limpenhoe Marshes. In addition, 7 males were present on a collector drain on Burgh Castle Marshes. Although Pochard have previously been proved to breed on areas adjacent to the Upper Yare (around Surlingham and on Hardley Flood) those found during this survey were the first breeding records for the Breydon area.

**Oystercatcher:** 68 breeding pairs were recorded. They were mainly centred around Breydon Water and, although present on the Upper Bure, were conspicuously absent from the Yare and Waveney above the New Cut.

**Lapwing:** 481 breeding pairs were recorded. Numbers were possibly under-estimated in areas not visited before June since young from successful first clutches may have fledged by the end of May.

**Snipe:** Fifteen drumming birds recorded, usually early in the morning or in the late evening. The occurrence of drumming may have been reduced by generally cold, wet and windy weather throughout April and early May and it is possible a few birds were overlooked. Of the total, 8 were at one very wet locality. They were absent from the main area of the marshes and were confined to the predominantly peaty areas around the upland margins. In April and early May, 354 feeding birds were recorded in the main body of the marshes in association with small areas of floodwater, but

these dispersed as the marshes dried out. Of the commoner breeding waders, Snipe are probably the most sensitive to drainage, and most of the Yare Basin was clearly too well-drained to support them. Additional factors may be the scarcity of rank, rushy growth, often preferred by nesting Snipe, and the lower moisture holding capacity of alluvial, not peaty, soils.

**Redshank:** 223 breeding pairs recorded, mainly concentrated around Breydon Water, the Lower Bure and Chedgrave Island. The Yare Basin is of regional importance for Redshank.

**Yellow Wagtail:** 457 breeding pairs were recorded, including 43 pairs St Benet's Level, 41 pairs Upton Marshes, 48 pairs Acle Marshes, 70 pairs Chedgrave Marshes and a total of 80 pairs Norton, Haddiscoe and Wheatacre Marshes. These were widespread although strikingly absent from much of Halvergate Marshes and concentrated on Chedgrave Island. An association with arable is probably due to a preference for nesting in a dense even sward of young cereals. They were frequently seen flying out of the larger complexes of arable to feed in the grazing areas, presumably on dung flies which are an important food source. The Yare Basin is of national importance for the species.

Additional species recorded included at least 4 pairs of Little Grebes detected at Burgh Castle where up to 12 pairs usually breed. There were another 3 pairs on Chedgrave Island. Small numbers of Canada Geese appeared on the grazing marshes in April and May, together with 3 Egyptian Geese on Belton Marshes in June. Shelduck were common all over the grazing marshes, although only 5 broods had been seen by the end of the survey. After the wintering Wigeon concentrations had dispersed, at least 6 remained on Chedgrave Island; 2 of these were "pricked". Teal were present at several localities in April, but none was found breeding on the grazing marshes. A pair of Pintail was present near Breydon in early April, but were not seen subsequently.

A few Tufted Duck were in the vicinity of the main waterways throughout the period April to June, although none was proved to breed. Moorhens were very common and widespread on dykes throughout the entire area. Coot were fairly common on the wider dykes and collector drains, especially on Chedgrave Marshes and Burgh Castle Marshes.

A pair of Ringed Plovers bred on a marsh adjacent to Breydon. Golden Plover were recorded on passage in April; 400 of the Northern race at Wickhampton Marshes was the largest concentration. A pair of Black-tailed Godwits was present on a wet meadow in April, but despite the fact that this was one of the few areas where surface water remained throughout the breeding season the birds did not stay to breed. Whimbrel occurred on passage in late April and early May, with a total of over 70 at six localities. Other passage migrants included Green Sandpiper, Wood Sandpiper, Spotted Redshank and Greenshank.

### **The likely implications of a barrier scheme upon the ornithological interest of the area**

It has been forecast that a guaranteed flood prevention scheme, such as that provided by the construction of a barrier across the River Yare, could accelerate the rate at which "marsh improvement" is carried out by individual farmers. In an area of about 21,300 ha examined during the Yare Basin Flood Control study (1977), about 4800 of grazing marshes had been "improved" by the end of 1977. It was considered that with the implementation of a barrier scheme a further 9000 ha would probably be subjected to agricultural development within 20 years, with another 5,900 ha being converted in the succeeding 20 years. Even so, it has been estimated that up to 12,000 ha would ultimately be reclaimed, even without additional flood protection, although the likely time scale for this process is not indicated.



Agricultural improvement is liable to affect the breeding waterbirds of the area in two main ways — through drainage and through an increase in the areas under cultivation.

On “improved” areas, the water table is generally lowered to about 1½m below the ground surface and this clearly has adverse effects on breeding waterfowl. De Jong found that the optimum spring water level for four species of wader breeding on a meadow bird reserve in the Netherlands was about 20cm below surface. Ditches are generally very deep with tile drains feeding into them and only very shallow water in the bottom. Herbicides are used to keep them clear of emergent aquatic vegetation and they therefore support very few breeding waterfowl. As drainage becomes more efficient, there is a decrease in the length of the ditch systems as old ditches are filled in, giving larger, more uniformed fields with much less marginal vegetation.

Areas of surface water on the fields in early spring are liable to be more rapidly lost due to the increased drainage capacity. Spring flooding may be important in inducing migrant and wintering waterfowl to stay and breed and Thomas found that the size of the breeding populations of some ducks on the Ouse Washes was governed by the amount of floodwater available at that time.

Loss of surface water would probably also affect the breeding success of some species. Damp hollows, close to nesting areas which persist into the early summer may be very important in providing feeding for broods of young waders which, when flightless, are less mobile than adult birds.

Much of the improved area would probably be devoted to growing cereal and other crops though there would probably also be some areas of high yield, reseeded grasses used either for silage production or for intensive grazing. Any increase in arable would probably adversely affect breeding Redshank, though the likely effects upon some other waterbirds are difficult to interpret. Oystercatcher would probably benefit from an increase in the areas under cultivation, though as grassland is known to be favoured after the young have hatched large areas of unrelieved arable may be unsuitable for nesting. Klomp commented that Lapwings were absent from large complexes of arable in the Netherlands, for perhaps this reason. As Yellow Wagtails generally feed in association with cattle and often nest in cereal they could remain unaffected, provided that a ‘balance’ between these two forms of land use is achieved.

Reseeded grasses, which form an even sward tend to be less suitable for nesting waders such as Redshank, since tussock-forming species which offer good concealment for nests are eradicated. In addition, early mowing for silage leads to the destruction of the nests and young of many wildfowl and waders.

The continuing trend towards drainage and conversion to arable poses potentially serious threats to the scientific interest of the Yare Basin regardless of whether the barrier scheme is implemented. It is clear, however, that the projected increase in the rate and possibly the overall extent of agricultural development which might accrue from such a scheme would exacerbate the problems of nature conservation.

### **Importance of the Yare Basin for breeding waterbirds**

In this assessment of its importance, the Yare Basin has been considered in its entirety. Despite its size, it may logically be regarded as a single site, as it forms a zone distinct from the surrounding uplands over which the vegetation and land use are fairly uniform. Indeed, much of the importance of the area stems from its extensive, unfragmented nature. The Yare Basin is of national importance for its breeding populations of two species, Shoveler and Yellow Wagtail and of regional importance for its concentrations of breeding Mute Swan, Oystercatcher, Lapwing and Redshank. As the area supports 3 scarce breeding species, Gadwall, Garganey and Pochard, it also attains regional importance in this respect.

As the river fens, which hold over a quarter of all breeding Redshank would probably remain unaffected by reclamation, they should be retained as reserves so that some of the interest of the area would be maintained, at least for this species. However, acquisition of small areas of grazing marsh as reserves could, without any form of conservation policy for the bulk of the area, fail to safeguard the national or regional importance of the Yare Basin for other breeding waterbirds which are scattered at a low density.

Continued agricultural development will be likely to take place in a piecemeal fashion without planning control and it will therefore be extremely difficult to monitor its progress and its effects on the breeding bird community. There is a need for both farmers and conservationists to agree upon a comprehensive land use strategy which would fully take account of the nature conservation interest of the area.

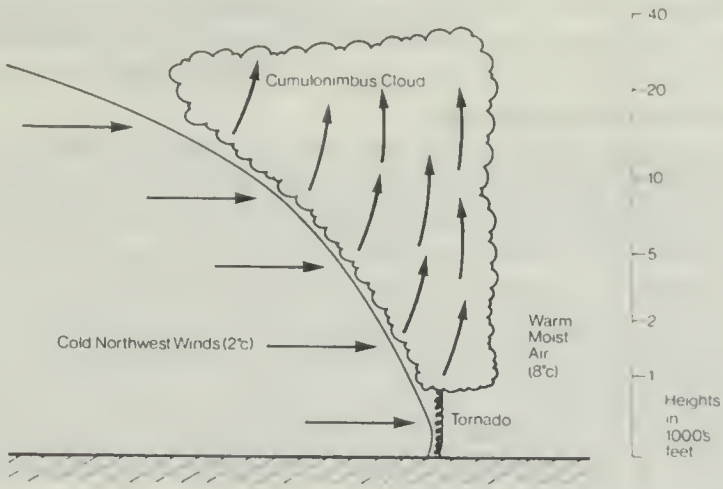
## A WILD GOOSE STORM DISASTER

SOON after dawn on the morning of January 3rd 1978 a violent storm crossed East Anglia. In its wake 140 wild geese lay dead in fields, along hedgerows and on the road. These were mainly Pink-feet but included Canada, Greylag, 2 Brent and one Bean goose. The following account of events leading to this avian disaster, and the conclusions reached, have been compiled after examining available meteorological and ornithological data.

Over Norwich and east Norfolk the morning of January 3rd dawned bright and breezy, but in the west of the county storm clouds rolled out of the darkened western sky, towering above The Wash towards Lincolnshire. This was not an isolated build-up of cloud but a line of many active storm centres joined along a vigorous and extremely mobile cold front. This front marked the boundary between warm moist air, which had lain over East Anglia overnight, and cold polar air rushing south-east across Britain from the north-west Atlantic. Temperatures dropped from 8°C in the warm air to 2°C behind the front. Over northern Britain this frontal boundary was relatively inactive but approaching East Anglia it rapidly intensified as a renewed surge of cold air displaced more and more warm air upwards through the atmosphere (Fig. 1). This whole frontal airmass became completely unstable, resulting in the formation of numerous cumulonimbus or "thunderstorm" clouds. Worse was to come.

When air is forced to rise very rapidly a localised spinning motion may be induced. The atmospheric forces acting on the rising air are identical to those which produce small whirlpools in the bath as water rushes down the plug-hole. In the atmosphere such spinning columns are called dust devils, whirlwinds or tornadoes, depending on size. In Britain the largest are normally only a few tens of metres in diameter and last for just a few minutes. In America, large tornadoes may persist for up to an hour and cause severe damage along a trail ½ Km wide.

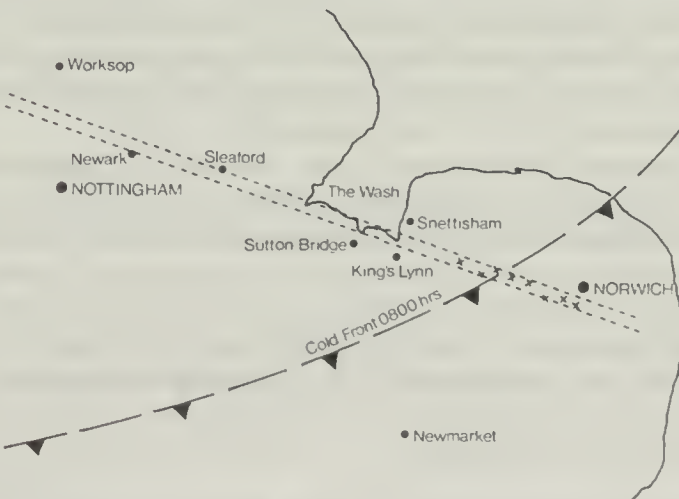
On the morning of January 3rd the cold air surging across East Anglia at nearly 50 mph caused sustained uplift of the warm air. This produced vigorous upcurrents and several whirlwinds and small tornadoes were reported. The first was in Hull just before dawn and 2 hours later a larger tornado struck the Newmarket area inflicting considerable damage to houses, cars and a railway signal box. (Chorley L.G., *Meteorological Magazine*, No. 1275, Vol. 107, Oct. 1978). Aubrey Buxton writing in the *NARVOS Report for 1978* states that Michael Hunt, the senior forecaster with Anglia TV, was informed by Dr Meaden, Director of the Tornado Research Organisation, "that at least 5 tornadoes were reported over northern East Anglia on the morning of January 3rd and considers that further unreported tornadoes were more



**Fig. 1. Cross-section through the frontal zone illustrating how the surge of cold air displaces the warm moist air. Cumulonimbus clouds are formed providing the air is unstable.**



**Fig. 2. Corridor along which the dead geese were located.**



**Fig. 3. The projection of the "kill corridor" northwestwards across the southern boundary of The Wash and into Nottinghamshire. A cross is plotted in each area where dead geese were located.**

than likely". Hence, it is probably reasonable to assume that, although no major tornadoes were sighted over The Wash or NW Norfolk, small tornadoes or funnel clouds could have developed. (A funnel cloud is a column of spinning air below a cumulonimbus cloud, but it does not reach the ground. Friction near the earth's surface breaks up the spinning motion).

The scene now changes to the salt-marshes surrounding The Wash, or possibly a field in Lincolnshire. A flock of wild geese is grazing or perhaps, as dawn breaks, they are fighting around The Wash between roosting and feeding areas. Out of the dark western sky the storm approaches, heavy rain and sleet lash down, thunder and lightning reverberate across the sky, hailstones crash around and the squalls reach 50 - 60 mph. There is panic. Many geese fly east, running before the storm, trying to escape its fury.

Suddenly, geese are sucked aloft like toy balloons. Caught in a whirling tornado their lungs are decompressed by the explosive drop in atmospheric pressure. Up, up they go. To what altitude is unknown but gliders accidentally caught in tornado clouds have been reported as experiencing uncontrollable uplift of over 10,000 ft! For a lightweight goose it could be much more.

The largest concentration of dead geese (105) was found between Castle Acre and Great Massingham, with Dereham 2, near Gressenhall 4 (including a Bean Goose), Wendling 14, Carlton Forehoe 3, Hethersett 10, Swardeston 1 and Mattishall 1 (Fig. 2). By the time the Mattishall bird was reported it had been cooked and eaten! Four birds were sent by Aubrey Buxton for post mortem examination (*NARVOS Report for 1978*). All four had ruptured livers and haemorrhaging, the result of blast, precussion or de-compression. This, it is reported, would alone have been enough to cause death but each one also had extensive internal injuries and bone damage, indicating that they crashed to earth from a considerable height.

The birds picked up dead were found along a relatively narrow corridor between Castle Acre and Swardeston. When extended north-west this corridor crosses southern parts of the Wash, the Welland estuary and into Nottinghamshire, passing close to Sleaford and Newark (Fig. 3). It is highly probable therefore, that the birds involved in this accident were feeding on the salt marshes or mud-flats along the southern shores of the Wash, perhaps part of the Snettisham flock which is known to feed extensively between Snettisham and Nene mouth near Sutton Bridge, and whose numbers declined that day from over 4500 to about 500. Four of the Canada geese recovered carried B.T.O. rings. All four had been ringed near Worksop, Notts, in 1970, 1971 and 1976 (two), and speculation arose that they could have been picked up by the storms over Nottinghamshire. This is possible but seems unlikely for three reasons: the large number of Pink-feet involved (there are few records of large concentrations in Notts); no reports of dead geese in Lincolnshire; and most important, the storms had passed the Worksop/Nottingham area before reaching maximum intensity.

It is therefore concluded that the most likely sequence of events was that a flock of geese fighting along the southern perimeter of The Wash at dawn, or panicked into the air by the approaching storm, was overtaken by a tornado or funnel cloud and forcibly sucked upwards to a considerable altitude, which caused death or unconsciousness. Their involuntary return to earth was then only a matter of time and occurred along a 30 mile path from near Castle Acre to just south of Norwich.

*Footnote:* Later that day observers at East Tuddenham, Costessey and Reepham reported skeins of geese numbering from 2 to 35 flying in a northwesterly direction, presumably finding their way "home".

**Wally Thrower**

# Bird Ringing Report

AFTER ten years, John Bruhn has regrettably decided to retire from the editorial committee of the *Norfolk Bird Report*. During this time, his expertise in the production of the Ringing Report has been invaluable, in particular his interpretation and comments on the individual recoveries.

The number of recoveries notified during 1979 was higher than usual, due to the hard weather during the 1978/79 winter, and several wader recoveries from previous years. Of particular note were Knot, Bar-tailed Godwit and Turnstone to USSR and Spotted Redshank to Italy. Passerine movements within the British Isles produced Blackbird and Linnet recoveries in Scotland and 2 Sand Martins found at the same Welsh lake. Pride of place, however, must go to the Song Thrush recovered in Estonia.

Over the years many recoveries have resulted from the more commonly ringed species. In future, it is planned to include in the annual ringing report a short analysis of the recoveries to date of a selected species as they relate to Norfolk. Any other ideas concerning the ringing section of the *Norfolk Bird Report* will be most welcome.

Moss Taylor

## Cormorant

The majority of Norfolk recoveries are of birds ringed in the Farnes; this is the first from a Scottish breeding site.

Clett Stack, Shetland 1.7.79

Tottenhill GP (shot) 3.11.79

## Heron

Of the five heron recoveries reported during 1979, two were found in their tenth year. The one distant recovery was unusual in moving NW.

Strumpshaw (pullus) 12.5.70

Chew Moor, Bolton, Lancs. 18.4.79

## Mallard

An interesting case of a bird wintering in different areas in consecutive winters.

Sonderho, Fano, Denmark 3.12.78

East Dereham 26.12.79

## Pintail

All previous Norfolk recoveries of foreign-ringed birds have been from Holland, and this one probably represents hard weather movement.

Haademeeste, Parnu, Estonia (pullus) Cley (shot) 14.2.79

16.6.77

## White-fronted Goose

There have been very few recoveries of grey geese in Norfolk.

Lijtshuizen, Friesland, Netherland

North Wootton 1.1.77

10.1.76

## Kestrel

One of the siblings of the bird recovered at East Runton, was found dead near Matlock, Derbyshire in Sept. '79. An interesting comparison of post-juvenile dispersal.

Ufton Fields, Southam, Warwicks.

East Runton (dead) 13.8.79

(pullus) 18.6.79

## Moorhen

The seventh recovery of a Dutch-ringed moorhen.

Worner en Jisperveld, Noord Holland, Acle (dead in coypu trap) 19.11.78

Netherland (pullus) 12.7.78



**Common Gull**

Norwich 4.12.77

Insel Barther Oie, Rostock, Germany  
25.5.79**Herring Gull**Ord of Caithness, Highland  
3.7.66

Blackborough End 16.9.79

**Common Tern**

Hardley Flood (pullus) 9.7.78

Monrovia, Liberia (caught) 19.3.79

**Kingfisher**

Colney (pullus) 1.6.76

Marlesford, Suffolk 10.8.76

**Sand Martin**

Although juvenile Sand Martins are known to disperse widely after leaving their natal colonies, it is remarkable that two should be reported from the same Welsh lake.

Leziate 11.7.79

Llangorse Lake, Merthyr Tydfil,  
South Wales 28.7.79

Aldeby 13.7.79

Llangorse Lake 4.8.79

Colney 10.5.75

Torreblanca, Castellon, Spain 5.9.77

**Swallow**

Included is only the fourth British-ringed Swallow to be recovered in Norway.

Happisburgh 10.5.79

Selby, N. Yorks. 7.7.79

Happisburgh 22.5.79

Cannock, Staffs. (control) 9.9.79

Thornham 18.9.78

Sogndal, Norway 19.5.79

Gayton 27.6.78

Luzarches, France (control) 16.9.79

**Blackbird**

Autumn and winter ringed birds were recovered in Holland, Germany (3), Finland (2), Sweden (3) and Norway, while foreign-ringed controls came from Holland (4) and Finland. Details are given of an 11 year old bird and an unusual movement to Scotland.

Hetersett 4.1.69

Norwich 15.12.79

Sheringham 28.10.78

S. Queensferry, West Lothian 24.3.79

**Fieldfare**

The first two recoveries indicated hard weather movement, while the others are to and from the breeding areas.

Sprowston 26.1.79

Brancaster 13.3.79

Sprowston 28.1.79

Envermeu, Dieppe, Seine Maritime, France  
27.2.79

Saddlebow 17.12.78

Tvarsele, Sweden 17.5.79

Saddlebow 27.1.79

Evijarvi, Finland 23.5.79

Firvensalmi, Finland 10.6.78

Saddlebow (control) 6.1.79

**Song Thrush**

An interesting series of movements, including the first British-ringed Song Thrush to be recovered in the Baltic States. This latter movement may usefully be compared with the recovery in the USSR (see *NBR* 1978 p.12), which was the first British-ringed Song Thrush movement to Russia.

Sheringham 23.7.77

Pocklington, Humberside 25.5.79

Sheringham 15.10.77

Spurn Point, Humberside 26.10.79

Norwich 19.2.76

Jullouville, Manche, France 16.1.79

Waxham 7.10.78

Otepa, Valga Region, Estonia 30.8.79

Gillingham (pullus) 28.5.79

Chateauneuf, D'Ille-et-Vilaine, France  
16.1.79

**Sedge Warbler**

Gibraltar Pt., Lincs. 4.5.77

Earlham (control) 22.7.77

**Reed Warbler**

Leigh on Sea, Essex 28.7.78

East Ruston (control) 11.7.79

**Whitethroat**

Sheringham 12.5.79

Saltfleetby, Lincs. (control) 1.6.79

**Blackcap**Included is a five-year old bird, which is uncommon amongst *sylvia* warblers.

Dungeness, Kent 1.5.79

Gillingham (control) 18.5.79

Colchester, Essex 18.9.79

Titchwell (control) 25.9.79

Happisburgh 29.4.78

Oostende, West Flanders, Belgium 5.5.79

Winterton 11.9.74

Marrakech, Morocco 22.6.79

**Willow Warbler**

Hoboken, Antwerpen, Belgium 8.8.77

Great Yarmouth 28.6.78

**Pied Flycatcher**

The first Norfolk-ringed bird of this species to be recovered in North Africa.

Hunstanton 19.8.77

Ajdir, Kenifra, Morocco 7.4.79

**Treecreeper**

Any recovery of this species is surprising!

Titchwell 6.10.78

Hunstanton (control) 2.4.79

**Starling**

Recoveries followed the usual well established pattern.

**Chaffinch**

A bird still alive in at least its tenth year and two foreign-ringed controls.

Holme 29.4.70

Holme (retrapped) 4.2.79

Svanninge, Bakker, Denmark 14.7.78

Titchwell (control) 22.11.78

De Koog, Texel, Netherland 24.10.78

Gillingham (control) 28.1.79

**Greenfinch**

Included is an interesting series of hard weather movements to Essex.

Gillingham 28.12.78

Harwich, Essex (dead) 25.1.79

Gillingham 23.12.78

West Mersea, Essex (dead) 10.2.79

Gillingham 16.12.78

Colne Pt., Essex (control) 24.2.79

Exeter, Devon 2.3.75

Wymondham (shot) 25.4.78

**Siskin**

Sheringham 8.4.76

Otterburn, Northumberland 19.5.79

**Linnet**

A difficult movement to interpret!

Gillingham (roost) 28.10.78

North Ronaldsey, Orkney (control) 18.4.79

**Redpoll**

Only two distant recoveries were reported during the year.

Sheringham 4.4.77

Wolverhampton, West Midlands 8.6.79

Boitsfort, Brabant, Belgium 9.11.76

Thetford 28.6.77

**Reed Bunting**

Titchwell 21.1.77

Colchester, Essex 12.1.79



# Classified Notes

These notes are based on *Birds of Norfolk* (revised edition 1977) where fuller details regarding status, distribution, migration and ringing recoveries may be found. Important records for Wisbech Sewage Farm (part of which is on the Lincolnshire side of the county boundary) have been selected from the files of Cambridge Bird Club. Fuller details of Fens records may be found in the Cambridge Bird Club Report for 1979.

The order used is that of Professor K. H. Voous (1977) List of recent Holarctic Bird Species. Observations refer to 1979, unless otherwise stated. To save space, all but the most essential initials have been omitted. Records are of single birds unless otherwise stated.

**Red-throated Diver:** North/East coasts: Extreme dates May 26th and Sept. 15th. Concentrations included 80 off Sheringham Jan. 27th and 90 east there Dec. 29th. Following Feb. blizzards singles on Yare at Postwick 15th and on Waveney at Gillingham 16th.

**Black-throated Diver:** More records than usual with an exceptional assembly of 36 off Winterton March 17th. Total of 19 inland records Jan. to April at Lound, Herringfleet, St Olaves, Ormesby, Rollesby, Breydon, Berney Arms, Lower Bure, Wymondham College (quickly released at Cringleford) and Strumpshaw; also a late bird Rockland Broad till May 15th. Extreme coastal dates April 27th and Sept. 28th.

**Great Northern Diver:** North coast/Wash: Over 40 records up to May 15th and from Oct. 7th. Scarce on East coast with only two observations. Inland at St Olaves Feb. 3rd, Downham Market on 24th and Pentney Dec. 23rd—26th.

**Little Grebe:** Broads: Breeding records from Breydon, Haddiscoe Island, and Muck Fleet (Flegg Broads). Fifty together on partly frozen Hickling Broad Jan. 28th. Wash: Peak of 75 at Snettisham in Nov; one on sea Hunstanton Jan. 2nd.

**Great Crested Grebe:** Wash: Peak autumn count of 135 between Heacham and Holme Oct. 27th. Broads: Unusual end of year build-up at Filby with 27 Nov. 30th, 29 Dec. 6th and 43 on 12th.

**Red-necked Grebe:** A large scale influx from mid-Feb. (with a few from beginning of Jan). Between then and April 18th recorded at following 42 localities (maximum numbers in brackets apart from singles): Brancaster, Burnham Norton, Breydon (4), Burnham Overy Staithe, Cley, Colney GP, Denver Sluice, Downham Market Relief Channel (2), Filby Broad, Gillingham, Gorleston, Gunton Park, Happisburgh, Hickling Broad (3), Horsey Mere (3), Hunstanton-Holme (10), Holme Broadwater, Haddiscoe New Cut, King's Lynn (2), Lound Waterworks (4), Lyng Easthaugh GP, Magdalen (2), Narborough, Ormesby Broad, Pentney GP, Ranworth Broad, Rockland Broad (3), St Germans, Stow Bridge (2), Stoke Ferry, St Olaves, Salthouse Marsh, Snettisham GP (6), Sheringham (2), Strumpshaw (2), Smallburgh, Titchwell (3), Welney (2), West Walton (3), Weybourne, Wells, Wiggshall St Mary, Yarmouth Lower Bure (4) and Yarmouth harbour entrance.

When influx at its peak, possibly a county total of 70. Casualties included singles dead at Breydon, Cromer, Holme, Sheringham and Strumpshaw.

N/E coasts: Autumn total of 20 birds from Aug. 25th at Brancaster, Cley, Happisburgh, Holkham, Hunstanton, Sheringham, Snettisham, Titchwell, Walcott and Winterton. Inland: Lyng Easthaugh GP Dec. 25th.

**Slavonian Grebe:** Noticeable influx Jan. to March when recorded as follows: North: Holkham, Cley, Titchwell, Holme, Brancaster, Thornham, Sheringham, Wells and Blakeney. Wash: Snettisham, Magdalen, and Hunstanton. Fens: Welney and Downham Market — Stow Bridge. East: Yarmouth and Gorleston. Broads: Potter Heigham, Filby, Rollesby, Hardley, Hickling, Breydon, Rockland, Lower Bure, Strumpshaw, and Horsey. Inland: Witton, Coston and Lyng Easthaugh. Records mostly of singles, but 4—5 at Hickling most of March and county total of 40 recorded. A few remained until mid-April.

Sept. coastal records included 3 Happisburgh on 23rd.

**Black-necked Grebe:** North: Brancaster (dead) March 23rd, Mundesley Nov. 18th. East: Horsey Feb. 9th, Hickling March 6th, Walcott Oct. 24th. Inland: Lyng Easthaugh Jan. 4th and April 2nd. Breck: Stanford Nov. 25th. Fens: Tottenhill Oct. 4th—5th.

**Fulmar:** North: Total of 60 young counted between Weybourne and Cromer in Aug. (Weybourne to Sheringham 34, Sheringham to West Runton 6, West to East Runton 7, East Runton to Cromer 13). Also bred at Hunstanton but young not counted; 14 returned there Nov. 17th. East: Bacton probably bred and 3 pairs nested at Happisburgh raising 3 young. Blue-phase bird Sheringham—Weybourne Jan. 16th—June 24th and Nov. 22nd. Inland: St Olaves Aug. 28th.

**Cory's Shearwater:** North: Cley July 27th. (HJB, GRW). Other records still under consideration.

**Great Shearwater:** East: Bacton/Paston Oct. 16th (RC, MF, KB).

---

The first recorded Red-necked Grebe irruption took place early in 1865 following severe weather when no less than 35 brought into Norwich alone were quickly acquired by the bird-stuffers. They had been obtained at Yarmouth, Salthouse and Blakeney. Until 1922 Red-necks again remained scarce, but during the intensely cold Jan. and Feb. of that year local taxidermists were kept busy. At Cley Pashley recorded in his diary "a great many grebes about especially Red-necked which I consider the rarest on this coast; I had in 7 or 8 and might have bought double that number". Gunn of Norwich received 3 Red-necks, whilst Saunders of Yarmouth handled a further 2. At Hickling, the head keeper recorded more grebes than he had ever seen there including 5 Red-necks and 20 Slavonians.

The third recorded influx was in 1937, again in Jan. and Feb. Most impressive totals were in Norfolk and the Red-necks were accompanied by Black-necked and Slavonian Grebes and by Black-throated Divers. At Holkham Lake all five British grebes were on show at the same time. Strong and bitterly cold NE winds had prevailed over Denmark for some days prior to the grebes' arrival and it seems very likely that a freezing Baltic caused the movement. Up to 19 Red-necks remained on the flooded Salthouse levels for seven weeks with as many as 13 at Holkham Lake. Elsewhere in the county ones and twos visited Ormesby, Filby, Horsey and Hickling Broads.



Slavonian Grebes (above) were present in above-average numbers, both on the Broads and along the coast. The Red-necked Grebe (below) was the bird of the year as a result of severe conditions in the Baltic. First arrivals were reported in mid-February and up to six found sanctuary at Snettisham Pits with four at Breydon.

*Photos: R. J. Chandler.*





**This group of Cranes successfully over-wintered in East Norfolk spending each day either on marshland, in winter wheat or in a partly cleared potato field. The birds roosted at the edge of a secret pool in dense reedbeds, returning to feed at first light.**

*Photos: J Buxton (centre and bottom) and P. R. Allard*

**Sooty Shearwater:** North: Holme Sept. 3rd, 5 on 22nd, Cley Aug. 24th, 4 on 26th, 4 Sept. 22nd, Hunstanton 3 Sept. 22nd and Sheringham Sept. 22nd.

East: Walcott Oct. 23rd, Nov. 5th, Waxham Oct. 14th, Winterton Aug. 26th, 2 Sept. 15th, 4 on 16th and one on 21st.

**Manx Shearwater:** North: (Mundesley to Hunstanton), peak movements late June (including 30 Sheringham 24th and 31 Hunstanton 29th), end Aug. (100 Holme 27th) and Sept. 22nd (40 Hunstanton and 11 Cley). Wash: Snettisham 2 Sept. 18th and Terrington on 20th.

East: Walcott Sept. 22nd and Oct. 26th, Happisburgh Sept. 23rd, Winterton 3 Aug. 25th, Sept. 16th, 21st and 2 on 22nd. Bird of the Balearic race Sheringham Sept. 22nd.

**Storm Petrel:** Wash: Snettisham Jan. 1st.

**Leach's Petrel:** North: Cley Sept. 22nd and Sheringham 4 same date.

East: Winterton April 27th.

**Gannet:** North/East: Most impressive movements included 215 off Cley Oct. 1st and 400 per hour south off Happisburgh same date. Wash: Snettisham 2 over village Oct. 1st. Fens: Wisbech SF April 27th (Later found dead).

**Cormorant:** East: up to 3 wintering in Wensum valley and up to 15 likewise in Yare valley at Marlingford.

Fens: Welney 54 Feb. 18th and 49 on overhead cables there March 18th, Saddlebow up to 30 Jan.—March. Wash: King's Lynn (River Ouse) 33 Feb. 17th. North: Holkham Lake 45 to roost Oct. 21st, Wells maximum of 60 Oct. 20th.

**Shag:** Wash/North/East coasts: At Sheringham following westerly gales high total of 60 east Dec. 19th—31st; otherwise no party exceeded 4. Broads: Rockland April 21st and Dec. 30th, Hickling 1—2 Nov. 23rd and Dec. 8th and Reedham Dec. 16th.

**Bittern:** Broads: Nine regular boomers compared with 6 in 1978 strongly suggests local birds left the county before Feb. severe weather. North: Cley, male and 2 females raised 2 broods; in addition one established boomer at Titchwell.

Casualties during hard spell at Horsey (2), Hickling, Sutton, Rollesby and Mautby whilst one caught and killed by dogs at Snettisham Jan. 20th.

**Little Bittern:** North: Cley male May 20th (DJF, SJMG, JBK, TAW).

**Night Heron:** East: Winterton May 13th (PRA).

**Little Egret:** North: Cley May 30th (JTB, THE, ERP).

**Great White Egret:** Broads: Hickling Aug. 10th—18th (RB *et al*), at 2000 hours on 17th observed perched on top of Ling's Mill. The first county record.

**Grey Heron:** The following heronries were counted. *Borders of Wash:* Snettisham 16. *Breck:* Didlington 7 and Shadwell 4. *Fens:* Hilgay 30 and Islington 71. *Broads:* Hickling 13 in Sounds Wood and one in Waggonhill, Wroxham Bridge Broad 8, Ranworth 5 and Halvergate Engine House Carr one.

**Purple Heron:** North: Cley/Wiveton May 16th—26th (WB *et al*). Broads: Hickling May 4th/5th (many observers).

**Black Stork:** East: Breydon July 31st (PRA). The third observation in three years.

**White Stork:** North: Hunstanton—Wells April 7th, (PWA, SCB, SMP *et al*), Overy Staithe 2 Sept. 21st (CW). West: Shouldham April 9th/10th (AEV).

**Spoonbill:** North: Cley April 11th (2) and 18th/19th, May 22nd—26th, June 5th—12th and July 21st. Broads. Hickling April 11th/12th (2) one of which had orange coloured rings on each leg, May 11th (2), May 29th/30th (3), June 16th and July 13th (one) and Aug. 6th (3). East: Winterton May 12th. Central: Stratton Strawless west April 3rd.

**Bewick's Swan:** Recorded up to April 7th and from Oct. 22nd. As usual largest concentration in Fens at Welney where 1200 throughout Jan.—Feb. with peak count (complete Washes) of 2300 in mid-Jan. — a new record; 700 present at Welney through Dec. Wormegay 150 feeding on winter wheat during Feb.

East: Total of 271 in Berney Arms area Feb. 26th including 2 yellow-dyed birds ringed at Slimbridge Jan. 16th; also 2 different yellow-dyed birds in Lower Bure marshes March 17th/18th. Between March 3rd and 5th total of 491 in Breydon area of which 320 headed out to sea. Haddiscoe records include 20 (2 dyed yellow) Feb. 11th, 48 March 8th and 20 on 27th. Postwick 9—11 including two with orange rumps mid-Feb. Geldeston 140 March 2nd.

Broads: Rockland, up to 21 Feb. 3rd—March 1st (2 with yellow wingtips on 17th); Filby 46 Jan. 2nd roosting on Broad with peak of 109 Jan. 27th; Hickling 32 Nov. 11th and 89 Dec. 12th.

Breck: 2—4 at Stanford and Fowl Mere Nov.—Dec.

North coast/Wash: Maximum of 50 Snettisham in Jan. Westerly movements at Titchwell Dec. 12th (50), Sheringham Dec. 22nd (43), and Cley Dec. 23rd (25).

Easterly exodus also noted Lyng Easthaugh (18 March 5th), East Tuddenham (44 March 21st), Reepham (50 March 22nd) and Hickling (72 March 27th).

**Whooper Swan:** Recorded to May 2nd and from Oct. 24th. Largest numbers in Fens at Welney where new peak of 114 at beginning of year and 75 in Dec. Broads: Martham/Heigham Holmes 18 in Feb. and Horning 11 in Jan. East: Breydon 8 in Feb. North: Hunstanton 19 Jan. 4th and Holkham 11—13 Feb.—March. Wash: Snettisham 16 Jan.—March.

**Bean Goose:** Unusually high county total of over 400 in opening months. East: Up to 141 in usual Yare valley area till March 11th; first returned Nov. 22nd and 127 by Dec. 22nd. In addition, on Feb. 3rd when 116 at most favoured marsh 81 at Halvergate and 26 at Berney Arms (total of 223) and also 122 Winterton—Horsey making a total of 345 in East Norfolk. A total of 135 in Halvergate area Feb. 5th may have included Yare valley birds as none there that date. Winterton—Horsey flock remained all Feb. with 110 March 1st and last 14 on 11th (same final date as for Yare valley).

North: Holkham up to 57—60 early Jan. to mid-Feb. with peak Feb. 4th—11th. Sheringham 23 east Feb. 25th; Holme 7 Feb. 4th.

**Pink-footed Goose:** East: Breydon 16 Jan. 14th/15th is only noteworthy record. Wash: Snettisham 1800 Jan., 1700 Feb., still 1400 March 10th, 210 April 7th and last 15 on 21st; 54 back Oct. 31st, 1250 Nov. and 3500 Dec. North: Wells/Holkham up to 37 mid-Jan. to Feb. 11th.

**White-fronted Goose:** East: Recorded up to March 4th and from Dec. 22nd in Yare valley, Haddiscoe, Horsey, Halvergate, Breydon, Potter Heigham and Hickling. Largest group 74 Breydon Feb. 2nd.

North: Holkham/Wells 200 Jan. 27th with 250 mid-Feb. and 76 Dec. 30th. Cley up to 26 till Feb. 24th. Hunstanton 56 Jan. 29th, 29 Dec. 16th and 35 on 23rd. Wash: Snettisham 10 in Feb. and 12 in March. Fens: Welney 10 Feb.

**Greenland White-fronted Goose:** North: Sheringham westward movement April 21st (one), 22nd (3) and May 7th (one).

**Barnacle Goose:** East: Yare Valley Dec. 1st—31st and Horsey Feb. 6th and 11th. Berney Arms/Breydon 2 Feb. 25th/26th and 8 March 29th/30th. Halvergate 11 Feb. 22nd. Winterton 11 Jan. 11th. North: Holkham 4 Jan. 27th—Feb. 19th with 6 on 10th.

**Brent Goose:** Recorded each month. Maximum numbers at regular localities: Breydon 56, Cley 1500, Wells 2—3000, Brancaster 1500—2000, Hunstanton 500, Snettisham 1100, North Wootton 750, Ouse Mouth 1000 and Terrington Marsh 600.

Pale-bellied birds Jan.—Feb. at Cley/Salthouse (15—20), Wells (2) and Stow Bridge (4).

**Egyptian Goose:** Recorded at 29 localities with most impressive assemblies at Flitcham-Hillington (78 Nov.), Burnham Overy (91 Jan.) and Holkham (200 July).

**Shelduck:** Wash: Snettisham 2612 in Jan., 3075 in Nov. North: Scolt Head 800 in Jan. East: Breydon record count of 1357 Jan. 3rd.

Breeding records away from coast include single pairs at Aldeby, Surlingham, Stanford Water, Beechamwell, Tottenhill, Pentney and Leziate with 2 pairs at both Flitcham and Weasenham and 3 pairs in Gunton Park.

**Mandarin:** 1—4 at Cley, Coston GP, Hoveton Great Broad, King's Lynn, Smallburgh and Winterton.

**Wigeon:** Fens: Welney 11,000 at beginning of year declined rapidly with onset of severe weather; 16,000 by year end. North: Cley 5,000 Nov. Wash: Snettisham peak of 2590 Jan., 2240 Feb. and 1178 Oct. East: Horsey 1,000 Jan./Feb. Breydon 4500 Jan. 15th—Feb. 26th. Yare Valley 2200 Jan. 6th—9th.

**American Wigeon:** East: Breydon Feb. 19th (PRA).

**Gadwall:** Largest counts: Brecks: Stanford Water 150—200 Sept. 11th. West: Hillington 75 Nov. 4th. North: Gunton Park 680 Sept. 29th, 610 Oct. 13th but only 18 on 27th.

**Teal:** Fens: Welney 1470 mid-March.

**Pintail:** Wash: Snettisham 412 Jan. North: Cley 150—200 Nov. East: Breydon 158 Feb.

**Garganey:** Spring arrival from April 10th (Halvergate) and subsequently at Cley, Haddiscoe Island, Wickhampton, Breydon, Limpenhoe, Cantley, Winterton, Sheringham, Snettisham, Filby, Wells, Hickling (3 small young found later), Welney (nests flooded out) and Wisbech SF.

**Shoveler:** Wash: Snettisham 32 early Jan. Fens: Welney 578 mid-March. Breck: Narford 150 Dec. 26th. North: Gunton Park 45 Oct. 15th.

**Pochard:** Fens: Welney 500 March 11th. Breck Narford 400 Dec. 26th; little information on breeding success in this area. East: Haddiscoe Island 3 broods and Strumpshaw one brood.

**Tufted Duck:** Winter counts include 105 Mickle Mere and 157 Snettisham both in March, 140 Hilgay Dec. and 222 King's Lynn—Magdalen Feb. Breeding records most complete in West and total of 22 broods at Downham Market (Flood Relief Channel), Tottenhill GP, Leziate, Saddlebow (Flood Relief Channel), Blackborough End, Wormegay, Foulden Common, Cockley Cley, Narborough, Beetley, Hillington and Thompson.

Elsewhere total of 24 broods at Cley, Lenwade, Taverham, Lyng Easthaugh, Coltishall, Hickling and Martham.

**Scaup:** North/East coasts: Higher counts than usual including total of 200 moving east off Sheringham daily between Jan. 1st and 7th when 49 off Mundesley, 40 off Brancaster and 97 off Hunstanton. Peak of 150 at Holme Feb. 3rd and 40 still at Heacham March 4th.

**Eider:** Largest gatherings for main localities: Yarmouth/Gorleston 22, Titchwell 200, Brancaster/Scolt Head 80 and Hunstanton 200.

**Long-tailed Duck:** Wash: Hunstanton monthly totals: Jan. 40, Feb. 5, Oct. 2, Nov. 5 and Dec. 22. North: Holme 35 in Feb. and 20 in March; Titchwell 15 in Nov.

**Common Scoter:** North: Hunstanton 420 Jan. and 700 Feb; Titchwell 200—250 Nov./Dec.. Inland: St Olaves Feb. 14th (strong easterly winds), Pentney 2 drakes April 7th, and Ranworth Broad 9 July 12th and one Dec. 12th.

**Velvet Scoter:** North/Wash: Recorded monthly except July. Largest number between Holme and Titchwell including 30 April 2nd. East: Winterton 9 and Gorleston 5. Singles inland at Denver Jan. 28th, Lound Feb. 10th—23rd, Gillingham Feb. 16th,

**Saddlebow** (King's Lynn) 17th—20th and King's Lynn 18th, Burgh Castle March 2nd. Broads: Ranworth 3 Feb. 22nd.

**Goldeneye:** Maxima as follows: Wash: Snettisham 71 (March) and 52 (Dec.), Heacham/Hunstanton/Gore Point 180 (Jan). Broads: Martham 31 (March) and Rollesby/Filby 12 (March). East: Breydon 78 (Feb).

**Smew:** Unusual numbers up to April 9th — majority in Jan./Feb. North: 1—3 at Cley/Salthouse, Hunstanton, Sheringham, Wiveton, Brancaster, Mundesley and Wells. Wash: Snettisham 4—6.

East: Lower Bure 8, Breydon 9, Fritton, Buckenham, Gillingham 2, Haddiscoe 2, West Somerton, Postwick, St Olaves and U.E.A. Broad Earham. Inland: Bawburgh, Blickling 6. Broads: Filby 2, Horsey 2, Hickling/Heigham Sounds 5—7 and once 9.

Fens: 1—2 Downham Market, Magdalen, Saddlebow, King's Lynn; also 10 over Wisbech SF Jan. 6th.

**Red-breasted Merganser:** Severe weather in the early part of year resulted in an abundance of records. Wash/North: 50 Snettisham in Feb. (38 in Jan.), 38 at Holme; total of 150—200 at Heacham—Hunstanton March 4th, 68 Heacham Oct. 27th and 78 Brancaster Oct. 28th.

East: Lound up to 5 Feb. 19th—March 11th, Potter Heigham up to 20 Feb. 21st—28th, Strumpshaw 2 Feb. 23rd, Postwick 3—5 Feb. 20th—25th, Trowse 3 Feb. 24th, Wayford Bridge 5 Feb. 25th and Repps 12 March 4th.

Fens: West Walton 8 Feb. 18th, Downham Market 3 Feb. 24th, Wiggenhall St Germans 10 Feb. 18th and 17 March 3rd and 11 on 30th and Denver Jan. 16th.

Broads: Hickling 20 Feb. 18th—April 19th, Ranworth Feb. 2nd, Rockland 3 Feb. 24th and Horsey 13 March 3rd.

Inland: UEA Broad Earham 5 Feb. 20th and Pentney 7 Feb. 22nd. Breck: Narford 7 most of Jan.

**Goosander:** Recorded until end of April at almost 50 localities including Filby 6, Potter Heigham/Repps 6, Denver 7, Sheringham 8 maximum together but total of 46 on 13 dates, Rockland 9, Breydon 11, Gorleston 9, Blickling 10, Strumpshaw 12, Hickling 12, Lound 19, Gunton Park 22, Fritton 12, Antingham Pond 7, Gillingham 6, Cockley Cley 9, Stowbridge 24, Stow Bridge-Magdalen 33 and Downham Market 56.

**Ruddy Duck:** East: Lower Bure/Breydon a duck Jan. 22nd—Feb. 26th. Breydon 3 Nov. 3rd (PRA). Broads: Ormesby March 14th—21st (ADB). Fens: Tottenhill GP a duck Nov. 16th—Dec. 7th. Wash: Snettisham a duck March 17th/18th (RWHG).

**Honey Buzzard:** North: 1—2 present at two sites from June 3rd, but no proof of breeding. In addition singles at North Walsham July 6th and Cley Sept. 7th.

**Black Kite:** North: Cromer May 28th (CF, HS).

Additional 1978 record: Cley Oct. 15th (RNH, AWW *et al*).

**Red Kite:** East: Winterton Feb. 27th (PRA). North: Langham May 28th (PJO).

**Marsh Harrier:** Nine pairs summered and nested at 8 sites rearing a total of 15 young to flying stage. More than usual at coastal sites in spring and autumn including 6 Holme May 13th, 4 Wisbech SF Aug. 29th, 7 Snettisham Aug. 18th where a total of 12 in Sept.

**Hen Harrier:** Unique numbers during 1978—79 winter with birds appearing very widely over arable country as well as ranging over marshes, heaths and dunes. Recorded in over 140 localities up to May 18th 1979: Alby, Acle, Aldeby, Boughton, Burgh Common, Bayfield, Brumstead, Blackborough End, Blakeney Point, Blakeney Fresh-Marsh, Barton, Brooke, Brancaster, Burnham Overy, Banningham, Breydon, Buckenham, Belton, Bridgham Heath, Briggate, Burnham Norton, Belaugh, Brettenham Heath, Bodney, Beechamwell, Cley, Costessey, Chedgrave, Castle Rising, Claxton, Cockley Cley, Cawston, Castle Acre, East Ruston, East Wretham, Ebridge, East



Walton, Flitcham, Fritton, Foxley Wood Foulden, Filby, Feltwell Fen, Felbrigg, Frettenham, Gooderstone, Gillingham, Hilborough, Holkham, Hockwold, Harpley, Hardley Flood, Happisburgh, Haveringland, Heacham, Hickling, Holme, Horsey, Halvergate, Ingham, Irstead, King's Lynn, Kelling Heath, Leziate, Lound, Lynford, Little Cressingham, Long Stratton, Langford, Massingham Heath, Morston, Martham, Mileham, Merton, Mundford, Middleton, Narborough, North Walsham, Northrepps, North Tuddenham, Oulton, Ouse Mouth, Ormesby, Potter Heigham, Pockthorpe, Postwick, Rockland Broad, Rougham, Ringstead, Reedham, Ridlington, Ranworth, Rackheath, Rudham, Roydon Common, Stalham, Stanhoe, Stoke Ferry, Sandringham Warren, Saxthorpe, Southacre, Salthouse Heath, St Benet's Level, Salthouse Marsh, Scolt Head, St Olaves, Smallburgh, Stanford, Snettisham, South Runcton, Sheringham, Somerton, Strumpshaw, Swanton Morley, Surlingham, Stoke Holy Cross, Swaffham Heath, Titchwell, Thornham, Thurning, Thompson, Thursford, Tottington, Threxton, Wolferton, Wortwell, Weybourne, Watton, West Acre, West Tofts, Wells, Wheatfen, Whitlingham, Weeting, Wisbech SF, Witton, Winterton, Waxham, Wickhampton, Wiveton, Wroxham and Woodton.

Totals (excluding roost counts) include 5 at each of the following localities: Blakeney Point, Gooderstone, Hilborough, Hickling, Scolt Head and Snettisham. Communal roosting sites a new feature. Three roosts recorded in North, 2 in NW and one in Broadland with a total of 45 birds. Interesting movements: 18 passing through Sheringham Jan. 4th—April 15th including 10 moving east; also 5 south at Winterton April 22nd.

First in autumn Sept. 15th with maximum of 6 Hickling/Horsey in Dec.

**Montagu's Harrier:** North: Titchwell female on three dates May 13th—June 2nd and male May 23rd and 27th, Holme May 13th, Aug. 15th, Cley May 7th and Sheringham May 6th. East: Winterton April 21st. Broads: Burgh Castle May 30th, Martham Aug. 4th, Hickling April 29th and May 6th and Horsey male in June. None bred.

**Goshawk:** Bred at one site and 4 young in nest; first bred here 1975 and annual since. Brecks: Feb. 25th. Broads: Buckenham Nov. 21st (NRJ). East: Horsey Feb. 24th (PRA) and Winterton April 13th (PRA, ADB) associated with movement of 17 Sparrowhawks.

**Sparrowhawk:** Recorded at 65 sites, but only one breeding locality. Interesting total of 17 south Winterton April 13th.

**Buzzard:** More than usual especially Feb.—June when recorded at Bacton, Brancaster, Breydon (3), Cley, Dilham, Edgefield, Foulden, Fritton, Haddiscoe, Happisburgh, Holkham, Hickling, Horsey (2), Lound, Martham Broad, St Olaves, Salhouse, Salthouse Heath, Sheringham, Titchwell and Winterton. Large numbers included 5 Sheringham March 24th, 4—5 Winterton March 18th and 4 on 24th followed by 8 south April 1st and 3 on 13th and up to 4 Lound—Fritton Feb. 10th—March 21st with 3 April 14th and 2 May 14th.

**Rough-legged Buzzard:** Exceptional numbers Jan. to May with one in June. Surprisingly only one autumn arrival (Cley Oct. 22nd): Recorded as follows (majority singles, but frequently 2 together): Barton Fen, Berney Arms, Breydon, Brettenham Heath, Cley, Dersingham Common, East Somerton, Ebridge (including June 1st), East Walton Common, East Tuddenham, Fleggburgh Common (till May 25th), Fritton, Foulden Common, Glandford, Halvergate, Haddiscoe, Heigham Holmes, Herringfleet, Hickling, Horsey, Holkham, Holme (including 9 May 13th), Kelling (till May 13th), Lynn Point, Lound, Massingham Heath, Overy Staithe, Ouse Mouth, Postwick, Ranworth, Reedham, Roydon Common, Sandringham, Salthouse (till May 18th), Sheringham, Snettisham, Smallburgh, Strumpshaw, Shotesham, Thetford, Tattersett, Wells (till May 13th), Weybourne, Winterton (3 in Feb., 4 in March, 5 April 22nd and 1—2 till May 19th), Witton, West Acre and Wolferton.



Red-footed Falcon

**Osprey:** Only six records: North: Cley April 21st and Sept. 7th, Blakeney Point Oct. 1st, Holme May 13th, Antingham Sept. 13th—27th and Narborough/Narford/Pentney Oct. 6th—11th.

**Red-footed Falcon:** East: Winterton male April 3rd (RC), females April 22nd, May 19th (PRA, ADB) and an immature Sept. 30th (PRA, ADB). North: Holme male June 8th (HBO), Kelling Heath immature female May 19th—23rd (GED, SJR *et al*).

Additional 1978 record: Cley immature male July 17th—27th (SCJ, ARL *et al*).

**Merlin:** Recorded at 31 localities up to May 12th and from Sept. 20th. Mainly singles, but 3—4 at Roydon Common.

**Hobby:** Singles at Acle, Breydon, Cley, Happisburgh, Hickling, Holme, Hethersett, Kelling, Letheringsett, Poringland, Sheringham, Syderstone Common, Titchwell, Welney, Winterton, Wiveton and Yarmouth. First May 8th; last Oct. 2nd.

**Peregrine:** North: Holkham/Thornham and Holme Sept. 27th; also at Holme Oct. 20th and 29th, Blakeney Jan. 29th, Scolt Head Oct. 20th, Hunstanton April 13th. East: St Olaves Feb. 10th. Fens: Wisbech SF infrequently through year (previously with jesses) and Welney Dec. 21st. Breck: Narford Dec. 26th. Wash Snettisham Nov. 5th.

**Quail:** North: Cley 1—2 regularly May 27th—June 24th and one caught with damaged wing on 15th. Heard Wells Aug. 30th—31st. Elsewhere, calling near Sparham June 6th and Tottington June 22nd.

**Golden Pheasant:** Recorded at East Harling, Thetford, Bircham, Fritcham, Sandringham—Wolferton, Swaffham Heath, Two Mile Bottom, Thompson and Narford.

**Coot:** North: Unusual observation of 82 on sea off Hunstanton Jan. 5th.

**Crane:** Broads: Geldeston April 5th/6th, Wortwell 20th/21st and Haddiscoe/Norton May 22nd/23rd doubtless all relate to same individual. Horning Oct. 7th bird captured (unable to feed as rubber wrapped round beak) and released March 1980.

East Norfolk: 2 Sept. 15th onwards and 3 Oct. 10th till end of year.

North: Holkham 2 March 17th. Cley May 23rd and 2 east March 17th. Fens: Welney May 22nd—26th.

**Great Bustard:** East: East Somerton male photographed Feb. 26th (JB) and later in day at Winterton (TC) and Martham (RGT). Bacton 2, possibly in from sea, March 2nd (RC). First county records since 1963.

**Oystercatcher:** Breeding pairs: East: Horsey Marshes 3. North: Blakeney Point 160, Scolt Head 170—180 and Brancaster golf course 7. Wash: Snettisham 12.

**Avocet:** North: Returned to Cley March 2nd and mating observed on 29th. Eight broods hatched from May 17th to July 10th with a total of 30 young. Last seen Nov. 3rd. Sheringham: 12 to east April 10th (compare Snettisham). Wash: Snettisham 12 April 10th and a single May 12th and June 1st. Broads: Hickling: April 15th, 3 May 9th (when mating noted), 2 June 10th—12th and singles Aug. 5th and Sept. 9th. East: Winterton 5 April 10th. Breydon: 3 March 17th, 2 April 10th (one till 15th), 1—4 on 10 dates between May 1st and June 13th and one Aug. 18th—19th.

**Stone Curlew:** Brecks: Breeding season records of 27—30 pairs.

**Little Ringed Plover:** Recorded from April 4th (W. Lexham) to Oct. 11th (Lyng). 17 pairs nested at 12 localities. Maximum counts of 7 at Cantley and King's Lynn Sept. 2nd and 12 west at Holme Aug. 2nd.

**Kentish Plover:** East: Breydon one June 7th and a different bird on 8th. North: Brancaster April 11th. Blakeney Point May 26th—30th. Cley—Salthouse 1—2 April 14th to June 4th often driven off by Ringed Plovers. Broads: Hickling: May 9th and June 13th—18th.



**Dotterel:** East: Winterton April 13th and Aug. 29th. North: Sheringham Sept. 7th.

**Golden Plover:** Large flocks: Welney 1200 May 6th, Lower Bure Marshes 1000 Jan. 7th and St Benet's Level 700 March 12th.

**Grey Plover:** Wash: Counts at Snettisham include 634 in Jan., 1100 May 27th, 940 Sept. 9th and 350 Dec.

**Lapwing:** Fens: 15,000 congregated at Welney early Dec.

**Knot:** North Titchwell 20,000 Sept. 7th, 35,000 Oct. 18th (a pure albino present Oct. 6th—10th), Holme 10,000 Oct. 5th and 12,000 on 10th. Wash: Snettisham: 28,560 in Jan., 27,500 late Sept. and 32,000 in Dec. Broads: Hardley Flood March 3rd.

**Sanderling:** North: Old Hunstanton 500 March 3rd, Thornham/Titchwell 100 June 3rd and 420 Sept. 9th. Wash: Snettisham 370 in July.

**Little Stint:** *Spring:* Cley March 20th, May 12th, 8 May 13th, 1—2 May 17th—29th, 10 June 10th and one on 23rd. Hickling: 2 May 12th. Fens: Wisbech SF June 8th. *Autumn:* Cley July 28th to Oct. 30th with maximum of 10 Oct. 7th. Weybourne 2 July 7th and 8 Oct. 6th. Broads: Hickling July 10th, 10 Sept. 23rd, 9 Oct. 2nd, 13 Oct. 10th, 3 Oct. 20th and 2 Nov. 2nd. Wisbech SF 2 Aug. 29th, 10 Sept. 26th—27th and 2—3 Sept. 29th to Oct. 27th.

**Temminck's Stint:** North: All records at Cley and Salthouse as follows: Cley during May: 2 on 17th, singles 18th, 19th, 21st, 22nd, 25th. June: one on 16th and 2 on 17th. Salthouse: 3 May 16th and one June 12th. Broads: Hickling 2 May 12th, 3 May 13th—16th, 2 May 18th—20th, 6 May 21st—22nd, 2 May 27th, singles May 28th, July 25th, Aug. 31st, Sept. 6th and 23rd.

**White-rumped Sandpiper:** East: Breydon Sept. 25th (PRA).

**Pectoral Sandpiper:** North: Cley Sept. 18th—25th. Burnham Overy Sept. 29th—30th. Broads: Hickling: Sept. 12th—26th.

**Curlew Sandpiper:** Three spring records: Cley May 26th, Weybourne June 2nd and Hickling June 23rd. In autumn Cley 100 Sept. 1st, Breydon 45 on 11th were the largest counts between July 17th and Oct. 31st. Small gatherings at Wissington BF and Holme.

**Purple Sandpiper:** Recorded from Gorleston, Yarmouth, Bacton, Mundesley, Overstrand, W. Runton, Sheringham, Cley, Brancaster, Titchwell, Holme Gore Point, Hunstanton and Heacham. Most observations in early part of year of 1—5 birds with maxima of 6 at Sheringham and Titchwell, 8 at Gore Point, 9 at Bacton and 9 at Hunstanton. In autumn from Aug. 12th (at Titchwell where 6 Sept. 27th and 3 Nov. 15th), Hunstanton 5 Nov. 17th onwards, Cley 3 Sept. 19th, Holme 2 Oct. 30th and W. Runton one Dec. 15th.

**Ruff:** East: Gorleston Jan. 27th. Broads: Hickling 30 May 14th and 45 on 15th. In autumn Wissington BF 36 Aug. 25th, Wisbech SF 21 Aug. 30th and Cley 20 Nov. 4th.

**Snipe:** Fens: 1050 at Welney in mid-March.

**Woodcock:** Roding at Cranwich, Witton, Winterton, Hickling, Horsford, Santon Downham, Weeting, East Wretham, Shouldham, Brundall, Catfield, Swaffham Heath and Mundford. Over 200 in Gillingham area in early Jan. when severe conditions tempted many into open.

**Black-tailed Godwit:** Breeding season: Fens: Welney 60 March 18th and impressive total of 122 (considered mostly Icelandic) April 18th; 5 pairs raised young. Cley: 2 pairs nested (young of one pair killed by Black-headed Gulls; female on other nest taken by Stoat). *Autumn:* Hickling 24 July 13th; Breydon 16 July 7th and 13th; Cley 10 Oct. 21st and 4 till Nov. 21st.

**Bar-tailed Godwit:** Wash: Snettisham 3700 in Jan. and 1847 in Sept. East: Breydon peak of 129 Sept. 27th.

**Whimbrel:** Extreme dates April 13th (Breydon) and Oct. 12th (Holme and Wells).

**Curlew:** Wash: Peak counts at Snettisham included 551 Jan., 1667 Sept. and 860 Dec.

**Spotted Redshank:** Winter records: Breydon Jan. 3rd; Cley Jan. 9th and Feb. 20th—25th, 2 Dec. 30th—31st. Autumn maxima: Cley 14 July 1st and 20 Aug. 24th, 18 Sept. 25th and 15 Oct. 21st—24th. Snettisham 50 during Aug. Inland: Lyng East-haugh GP 2 Aug. 19th.

**Redshank:** Wash: Snettisham counts include 915 Jan., 921 Aug., 2,587 Sept. 3,006 Oct. and 1,500 Dec.

**Marsh Sandpiper:** North: Cley Aug. 14th—18th (DSF *et al*). The first county record.

**Greenshank:** In winter at Titchwell Feb. 25th, Dec. 8th and 29th. Spring largest party 9 at Hickling May 15th. Autumn maxima: Breydon 20 Aug. 1st, Titchwell 35 Sept. 9th, Holme 17 Aug. 17th—21st, Snettisham 42 July 13th and Scolt Head 18 Sept. 15th.

**Green Sandpiper:** Broads, largest party at Hickling where 19 Aug. 18th.

**Wood Sandpiper:** In spring 1—3 at Cley, Fleggburgh Common and Winterton May 7th—18th and one Wisbech SF June 13th. Autumn return from Aug. 7th including 8 at Cley.

**Wilson's Phalarope:** North: Cley May 17th—18th (RB, ISA). Holme Sept. 12th—20th (PRC, JN *et al*). Fens: Wisbech SF 2 Aug. 29th (SS, JL).

**Red-necked Phalarope:** North: Cley adult female May 13th—22nd, a male May 13th and 24th and another female June 17th—24th. Broads: Hickling May 14th. Autumn records from Cley Aug. 25th—Sept. 2nd, Weybourne Sept. 3rd, Sheringham Aug. 26th, Snettisham July 30th—Aug. 5th and Sept. 7th.

**Grey Phalarope:** North/East coasts: Hunstanton Jan. 4th, Winterton Sept. 23rd and Cley Dec. 21st are the only observations.

**Pomarine Skua:** East: Winterton Sept. 17th and Oct. 21st. North: Holkham Oct. 7th. Cley Sept. 22nd and 26th, 2 Oct. 15th, singles Oct. 16th, 18th and 27th. Walcott 4 Oct. 21st, Sheringham Feb. 18th, Sept. 21st, Oct. 2nd, Nov. 10th and Dec. 31st. Mundesley Nov. 20th. Blakeney Point Sept 7th. Hunstanton/Holme 4 Oct. 13th. Holme 3 Sept. 14th and 2 on 28th. Hunstanton Aug. 13th, 2 Aug. 27th and 3 Sept. 22nd. Additional 1978 records Holme 4 Oct. 21st, Snettisham Sept. 22nd.

**Arctic Skua:** In winter at Brancaster Jan. 1st, Blakeney Feb. 18th, Sheringham on 28th and Dec. 31st and Winterton Dec. 1st. Autumn totals include: Hunstanton 30 Aug. 24th, Holme 42 Aug. 27th and 40 Sept. 19th and Titchwell 35 Sept. 3rd. Biggest counts Sept. 22nd when 27 at Sheringham, 37 at Cley and 130 at Hunstanton.

**Long-tailed Skua:** East: Winterton Aug. 25th (PRA). North: Blakeney Point immature Aug. 26th (DP), Holme adult Sept. 22nd (RM, BAC).

Additional 1978 records: Sheringham 2 juveniles Sept. 17th (CIB, DSF) and Scolt Head 3 juveniles Aug. 27th (SCJ, NW).

**Great Skua:** Early in year records from Sheringham Jan. 1st and 4th (latter bird dead), Feb. 16th and 18th; Hunstanton Jan. 1st and 3rd, Bacton Feb. 18th and Yarmouth Feb. 18th. Maxima in autumn: East: Winterton 9 Sept. 21st. North: Cley 13 Aug. 26th, 20 Sept. 22nd; Sheringham 15 Sept. 22nd; Titchwell 18 Sept. 21st; Holme 40 Sept. 15th, 12 on 19th and 11 on 22nd; Hunstanton 17 Sept. 22nd and Brancaster 13 Sept. 22nd. Latest Mundesley 4 Dec. 21st and Hunstanton Dec. 31st.

**Mediterranean Gull:** East: Yarmouth May 25th, 29th, Sept. 29th and Oct. 31st. Breydon at least 8 first-summer birds May 9th to June 26th with 5 together May 27th. Horsey adult Jan. 13th. North: Cley a first-summer bird April 16th—17th and another June 2nd and Oct. 6th. Sheringham April 13th—May 5th, Oct. 1st—2nd and Dec. 20th. Wells Sept. 27th. Burnham Deepdale Aug. 27th, Scolt Head July 26th and Old Hunstanton immature Jan. 6th. Wash: Snettisham June 16th—17th.

**Little Gull:** Many records of small parties for each month except Dec. from Yarmouth, Gorleston, Walcott, Happisburgh, Hickling, Winterton, Cley, Sheringham, Holt (2 over town centre Aug. 11th), Filby, Weybourne, Wells, Holkham, Brancaster, Titchwell, Hunstanton, Heacham, Snettisham and Ouse Washes. At Holme-Thornham up to 25 immatures and 4 adults present during June. Largest numbers moving during Sept:—Oct. as follows: Winterton 92 to north Sept. 16th. Pronounced movements Oct. 26th to east with Sheringham 100, Cley 40, Walcott 145, Holme/Hunstanton 87 and again Oct. 27th with Sheringham 219, Cley 115, Happisburgh 100, Winterton 185 (in 3½ hours), Holme 78, Titchwell 20, Hunstanton 60 and Heacham 10. Lesser numbers Oct. 23rd when 40 off Sheringham and 46 (including 18 inland) at Walcott and Oct 28th when Holme had 39 east.

**Sabine's Gull:** *Spring:* Happisburgh immature April 27th, Holme adult May 17th and a second-summer bird June 22nd and Cley May 18th.

Other records from Winterton where immature Sept. 23rd, Cley Oct. 22nd and an immature Dec. 22nd, Holme immature Aug. 29th and an adult Oct. 6th.

**Common Gull:** North: A pair bred at Blakeney Point raising 2 chicks.

**Lesser Black-backed Gull:** North: Blakeney Point 2 pairs nested, but only one hatched 2 young.

**Iceland Gull:** East: Breydon Nov. 25th. North: Sheringham Dec. 14th; Holme second winter Feb. 18th and immature May 29th.

**Glaucous Gull:** The now familiar Blakeney to Sheringham adult present until March 10th and from Aug. 19th; another adult was present during winter. Also records from Breydon (2 Feb. 25th), Heacham (2 Jan. 6th), Holkham, Sea Palling, Holme, Strump-

#### Mediterranean Gulls.



shaw, Caister, Waxham, Overstrand, Mundesley, Cromer, Snettisham, Brancaster and 5 between Hunstanton and Thornham March 17th. Seen up to April 29th and from Oct. 28th. Unusual summer record from Blakeney: July 3rd.

**Kittiwake:** 12—15 pairs attempted nesting on gas rig 45 miles NE Yarmouth — all unsuccessful.

**Sandwich Tern:** North: Blakeney Point 3,500—3,800 nesting pairs raised 2,000 flying young. Scolt Head 2,000 pairs raised 1,500—1,600 flying young. Inland: 2 at Gillingham on Waveney July 15th and 4 Wisbech SF Sept. 9th. Late birds at Holme Oct. 31st and off Cley and Sheringham Dec. 23rd.

**Roseate Tern:** North: Blakeney Point May 17th (PAG) and Sept. 5th (MC).

**(Common Tern:** Observed April 13th (Flegg Broads) to Oct. 17th (Titchwell). Breeding pairs (young raised in brackets): Broads: Hardley Flood 16 (20), Ormesby 6, Ranworth 27 (58), Hickling 13 and Martham 3 (6). East: Breydon 31 (33).

North: Salthouse 10 (1), Overy Staithe 5, Thornham 2, Titchwell 9, Scolt Head 300 (110), Blakeney Point 850 (500), Cley 2, Bob Halls Sands 74, Stiffkey Binks 104. Wash: Snettisham 120 (120). Central: Lyng Easthaugh GP 4 (5).

**Arctic Tern:** North: Blakeney Point 3 pairs raised 3 young to flying stage, Stiffkey Binks 2 pairs bred and Scolt Head one pair bred.

**Little Tern:** Extreme dates April 12th (Thornham) to Oct. 17th (Wells). Breeding pairs (numbers of young in brackets): East: Winterton/Waxham 17—18 pairs (some young trodden by horses). Broads: Hickling 34. North: Blakeney Point 160—180 (160), Thornham 30—35 (35), Brancaster 19 (25—30), Burnham Overy/Wells 49, Titchwell 33, Scolt Head 71 (83), Stiffkey Freshes 20—25, Bob Halls Sands 17, Stiffkey Binks 38.

At Hickling Broad roost at peak May 11th—16th when up to 126 assembled.

**Black Tern:** A widespread spring passage began April 11th when one at Cley and 2 at Welney; Sea Palling on 12th and Snettisham on 15th. A considerable movement was evident May 13th/14th as follows:

May 13th: Ranworth 25, Hickling 41, Breydon 7, Hardley Flood 2, Lyng Easthaugh (GP 2, Micklemere 2, Welney 32, Sea Mere 3 and a single at Cley.

May 14th: Lyng Easthaugh GP 3, Hickling 20 and 20 there on 23rd. Three birds at Hoveton Great Broad May 15th summered until departure Aug. 14th — the first over-summering record for Broadland since breeding ceased in last century. Autumn passage from July 1st (Snettisham) and 7th (Wisbech SF) and among Aug. records (Overy Staithe 15 on 17th, Cley 28 on 18th, Holme 24 on 17th and 21 on 18th, Terrington 5 on 18th, Hunstanton 12 on 15th and Sheringham 10 on 19th. Sept. records from Cley (including 10 on 2nd and 22 on 8th), Blakeney, Snettisham, Sheringham and last seen Scolt Head on 26th.

**Black Guillemot:** East: Paston Aug. 20th. North: Cley Dec. 22nd—31st.

**Little Auk:** North: Cley Nov. 13th (oiled) and Dec 16th, Weybourne Dec. 24th (dead), Kelling Dec. 20th (exhausted), Sheringham Dec. 26th (dead). East Winterton Oct. 27th, Horsey (exhausted a mile inland) late Jan.

**Puffin:** North/East coasts: 1—4 on 11 dates in May and Sept.—Nov.

**Collared Dove:** Interesting series of spring migrant records: Winterton several north April 21st/22nd, 5 north on 29th, 7 May 5th, 4 north on 12th and 4 north on 19th with one in from sea 18th; 2 on gas platform 55 miles NE of Yarmouth May 15th, one on platform same date 45 miles NE of Yarmouth; also 2 with 2 Turtle Doves on gas platform 55 miles NE of Yarmouth June 29th (PRA). Sheringham, passage of 26 west May 7th.

**Turtle Dove:** North: Spring westerly movement included 500 Weybourne May 15th, 235 Brancaster May 14th with 288 on 15th and 90 June 6th; 150 an hour Cley May 31st.

**Ring-necked Parakeet:** Singles at Winterton, Sheringham and Holme with 2 at Hickling.

**Barn Owl:** Recorded at 80 localities. One of dark-breasted race at Holme Oct. 26th (TRB).

**Little Owl:** Recorded at 33 localities.

**Tawny Owl:** A grey-phase bird Hardingham Sept. 20th (JDG).

**Long-eared Owl:** Only one known breeding record: Grime's Graves in Breck. Breeding season records from Salthouse Heath, Brancaster Common and Hindolveston. Spring migrants at Waxham April 8th, Cley (Walsey Hills) on 11th and Winterton (3-4) next day. Wintering birds at Winterton, East Ruston, Cley, Massingham Heath, Salthouse Heath, East Wretham, Snettisham, Brancaster Common (7 Jan.—Feb. and 6 Nov.) and Ringstead Common (3 Dec).

Migrants in off Sea at Walcott (Oct 24th) and at Sheringham and Cley (Oct. 27th). One on a gas production platform 45 miles NE of Yarmouth April 18th. A severe weather casualty Wacton Feb. 16th.

**Short-eared Owl:** Breeding season records from Cley, Salthouse, Weybourne, Sheringham, Cantley, Tunstall, Belton, Burgh Castle, Acle Marshes and Hickling. Winter roosts: Runhall 8 Jan. 28th and Acle Marshes 10 Feb. 17th. Spring migrant to sea at Happisburgh May 10th.

Migrants in off sea at Sheringham Jan. 13th, Happisburgh Oct. 11th, Cley Oct. 24th and Blakeney Point Oct. 27th.

**Nightjar:** Breeding: Brecks: Records received from Mundford, East Wretham, Santon Downham and Grimes Graves but undoubtedly present at other suitable locations. Elsewhere noted at Sandringham/Wolferton/West Newton, Shouldham, Roydon Common, Swaffham Common, Leziate (5 pairs), Salthouse Heath (5 + singing males), Horsford and Winterton.

**Swift:** Only four October records received, all early in the month. A very late bird at Happisburgh Nov. 5th.

**Alpine Swift:** One moving westwards Weybourne May 13th (KB). First since 1975.

**Kingfisher:** An unusual record of one flying along beach at Bacton Nov. 7th. Recorded at 67 localities.

**Hoopoe:** A total of seven spring records: Caister March 26th—28th, Holme April 16th—18th, Crostwick Heath April 16th, near Ridlington April 17th, Bramerton Woods End May 8th, Stibbard May 20th and Gooderstone May 29th. As in 1978 a single autumn record: Holkham Park Aug. 1st.

**Wryneck:** In spring four records within an eight-day period in May: East Wretham on 6th, Narborough on 10th, Hickling on 12th and Cley on 14th. An unusual record of one at Anmer June 18th. In autumn only recorded within two narrowly defined periods at end of August and beginning of October as follows: Cley and Hickling Aug. 25th, Blakeney Point Aug. 27th, Hunstanton Aug. 29th—31st, Wells (2) Oct. 2nd, Stiffkey Oct. 3rd and Gorleston Oct. 3rd—6th.

**Short-toed Lark:** A further three autumn records, all separate individuals in the Weybourne area Sept. 25th/26th (GED, MF, KBS, MPT), Oct. 16th (GSM, JCM) and Oct. 20th (MF).

**Woodlark:** Surprisingly no records received away from Brecks where only noted at four localities. Most regularly in the Santon Downham area including 15 Sept. 1st.

**Skylark:** A pale grey bird at Sheringham Sept. 25th/26th considered to be one of the Eastern races (KBS).



**Shorelark:** Only regularly recorded Cley-Weybourne area where present up to May 14th (22 at Kelling Quags) and from Oct. 27th with maximum of 43 at Salhouse Jan. 9th. Elsewhere on North Coast. Holme 6 Oct. 5th/6th, 2 Oct. 10th and one Oct. 28th, Scolt Head 3 Oct. 12th, 2 Oct. 20th and 3 Oct. 23rd, Holkham 40 Feb. 4th and one Nov. 17th, Wells 15 in Dec. and Blakeney Point 12 Feb. 18th. Only one East coast record: Gorleston Oct. 6th.

**Sand Martin:** Two late autumn migrants, Weybourne Oct. 15th and West Acre Oct. 24th.

**Swallow:** First spring record at Stiffkey March 27th. An albino Stalham Aug. 29th. A late bird at Wells Dec. 2nd.

**Red-rumped Swallow:** North: Holme June 3rd and presumably the same bird briefly the next day (HBO). The second in three years but only the fourth county record.

**House Martin:** A large breeding colony containing 136 nests still present on Saddlebow Bridge near King's Lynn. A total of eight records of 1—5 birds still present in November. Also the first December records for 5 years with singles at Mundford on 2nd and Wymouth on 6th.

**Richard's Pipit:** Four autumn records: Weybourne Sept. 29th (KH, TAW), Holme Oct. 1st—26th (HBO), a second at Weybourne/Sheringham Oct. 13th (MPT, TAW *et al*) and Horsey Nov. 24th—28th (PRA, TEB, RC). A wintering bird at Cley Dec. 22nd into 1980 (PAD *et al*) following one at Holme in 1977 - 8 winter.

**Tawny Pipit:** East: Winterton April 22nd (PRA, ADB, SC) and June 5th (RC, MF).

**Rock Pipit:** One showing characteristics of Scandinavian race at Sheringham April 13th.

**Water Pipit:** At Cley singles Jan. 7th and four dates Oct. 17th—Nov. 17th. At Hickling 2 April 11th, one April 14th—16th, 2 Oct. 24th one remaining until Nov. 5th. Elsewhere Blakeney Point Oct. 12th and Winterton Oct. 28th and Nov. 24th.

**Yellow Wagtail:** Fens: 70 Wisbech SF April 20th. An interesting record of an autumn roost at Stow Bridge with 200 Aug. 10th—25th dropping to 50 by end of month and dispersing soon after.

**Blue-headed wagtail:** Following isolated records of 1/2 birds in April, the first being at Wisbech SF on 13th, an above-average number of records in May (perhaps as many as 47) at a variety of localities with maxima of 8 at Happisburgh May 7th, 6 at Sheringham May 8th and 12 at Winterton May 9th. Singles at Breydon June 24th and July 2nd.

**Kirghiz Steppe Wagtail:** A male showing characteristics of this race Sheringham April 15th (DS, KBS). The first county record of this race.

**Grey-headed Wagtail:** Singles at Cley May 16th and 22nd, Salhouse May 28th and Hickling June 1st—6th.

**Ashy-headed Wagtail:** A male showing the characteristics of this race at Winterton May 19th (PRA, ADB). The sixth county record of this race and recorded for the third year in succession.

**Grey Wagtail:** Breeding only noted at Keswick Mill and along River Nar (two successful nests). Also present in Norwich in summer months but no proof of breeding.

**Pied Wagtail:** Fens: An interesting roost at Stow Bridge late July—early Sept. with maximum of 500 Aug. 10th.

**Waxwing:** Again only a small number of records: Stalham Jan. 3rd, Thorpe St Andrew Jan. 5th, Stoke Holy Cross Jan. 14th, Strumpshaw (3) Jan. 20th—21st, Norwich Jan. 28th, Gorleston Feb. 8th, Waxham Nov. 21st—24th and Wells Dec. 25th.

**Alpine Accentor:** Attention has been drawn to a record of one under the old Gorleston Pier 21st Sept. 1894 observed by A. H. Patterson and published in *The Handbook*. Hence the Sheringham 1978 observation is second county record.

**Nightingale:** Only one passage migrant noted, Happisburgh (ringed) May 9th.

**Bluethroat:** Singles at Happisburgh (ringed) May 9th and Weybourne Sept. 25th. This species appears to be becoming an increasingly rare passage migrant, especially in autumn.

**Black Redstart:** Breeding season: Yarmouth 6 singing males. Elsewhere a pair at Weybourne until mid-June but no evidence of breeding and one Norwich mid-May. Main spring passage March 19th—April 24th with maximum of 6 at Winterton April 10th. Isolated records at Snettisham May 7th and Sheringham May 17th. In autumn isolated records at Gorleston Sept. 6th and 10th (probably relating to dispersing breeding birds from Yarmouth) with main passage Sept. 30th—Oct. 16th. No winter records received.

**Redstart:** Breeding season records from Frog Hill, Foulden, Sheringham (2 successful pairs), Felbrigg and Horsford. Late migrants at Wells Oct. 28th and Happisburgh Oct. 31st.

**Whinchat:** Present in summer months at Bridgham Heath and Winterton, but no proof of breeding.

**Stonechat:** Breeding: One pair at Weybourne and five pairs Winterton-Horsey.

**Wheatear:** A major influx of migrants on Wash and North coasts April 10th. Apart from Brecks breeding noted at Snettisham and Leziate. November migrants at Happisburgh on 1st, Wells on 3rd/4th and Snettisham on 4th and 24th.

**Ring Ouzel:** Spring passage March 24th—May 14th with maxima of 5 Winterton April 13th, 7 Potter Heigham April 21st (an unusual number inland) and 8 Weybourne May 8th. A late female Blakeney Point June 2nd. Autumn passage commenced Sept. 30th, with simultaneous arrival at five north coast localities, and continued until Nov. 13th when a late bird at Hickling; maximum concentration 17 Wells/Holkham Oct. 13th.

**Fieldfare:** Latest spring records, Winterton May 16th and Buckenham May 21st.

**Cetti's Warbler:** Broads: Spring singing males in Yare Valley at Surlingham (4), Wheatfen (5), Strumpshaw (9) and Rockland (3). The cold weather early in the year appeared to have little or no effect on this species and having regard to the similar numbers recorded since 1976 it is interesting to speculate whether it has reached its optimum population level in this particular area of specialised habitat in the Yare Valley. Only one record elsewhere, one singing at St Olaves end December.

**Pallas's Grasshopper Warbler:** 1976 record: North: Cley Sept. 13th (GS). The first county record of this vagrant which breeds in Western Siberia and central Asia and only the fourth British record.

**Savi's Warbler:** Broads: Hickling: First April 13th singing regularly until May 5th when joined by a second songster. Four in song from mid-May until early June with occasional outbursts until end of July. Singing resumed from Aug. 1st and last heard Aug. 18th. Martham Broad at least 2 singing males (3 birds seen). Horsey Mere one pair present. Elsewhere one singing Cley April 24th—28th.

**Icterine Warbler:** Only a small number of records as in 1978: Wells Aug. 25th—27th, Sheringham, (trapped) Aug. 28th, Gorleston Sept. 14th and 23rd, and Yarmouth Oct. 1st.

**Barred Warbler:** North: Cley Aug. 24th—27th, Blakeney Point Oct. 13th, Wells 2 Aug. 26th/27th one remaining until Sept. 1st and another Sept. 9th, Holme 3 Aug. 25th and singles Aug. 29th & 31st and Hunstanton 2 Aug. 29th—31st.

- Garden Warbler:** A late migrant ringed at Happisburgh Nov. 2nd.
- Blackcap:** Wintering records: birds regularly seen in first winter period at Thetford, Poringland (2) and Hellesdon. Elsewhere isolated records at Edgefield Green Jan. 6th, Bacton: Oct. 1st and Yarmouth Oct. 2nd.
- Yellow-browed Warbler:** North: Wells/Holkham 1—2 Sept. 30th—Oct. 13th including one on the 3rd which called 57 times in succession, Blakeney Point Oct. 1st. East: Bacton: Oct. 1st and Yarmouth Oct. 2nd.
- Wood Warbler:** First recorded April 15th at Narborough. Coastal spring migrants at Wells and Snettisham May 13th and Titchwell May 15th. Singing males in breeding season at Sheringham (2), Kelling (2), South Runcton, Swaffham Heath and at one Breck locality. One at Leziate July 4th. Autumn migrants at Wells Aug. 27th, Blakeney Point Aug. 9th & 31st and Beeston Regis also on 31st.
- Chiffchaff:** Birds of *abietinus* race at Yarmouth Oct. 1st and Wells Oct. 24th. A wintering bird at Narborough Dec. 21st until end of year.
- Willow Warbler:** Birds of greyer Northern race noted Cley May 7th (6) and Holme May 13th (30).
- Firecrest:** Spring migration occurred in three distinct periods: March 27th—April 2nd, April 8th—22nd and May 5th—16th. At least 30 birds involved, most in mid April, with records from Holme, Titchwell Holkham/Wells, Blakeney Point, Cley, Sheringham, Waxham, Winterton, Hopton and Gorleston, and inland at West Walton, Witton, Bodham, Felbrigg and Taverham. Maximum daily count of 3 at Holme and Holkham/Wells. Total of at least 15 in autumn between Oct. 2nd—Nov. 8th with records from Holme, Holkham/Wells, Sheringham, Happisburgh, Yarmouth (where maximum of 4 Oct. 5th), Gorleston and inland at East Wretham and Blickling. One found dead Coltishall Dec. 2nd.
- Spotted Flycatcher:** A pair in an East Tuddenham garden September 6th—8th seen to catch Small Tortoiseshells, Peacock, large White, Brimstone and Silver moth.
- Red-breasted Flycatcher:** One spring record, a female or immature male Blakeney Point June 4th (JBK), the first since 1972. In autumn Cley Oct. 1st (JBK), Yarmouth

Firecrest and Golderests.





Oct. 1st/2nd (PRA, GED) and Holme Oct. 27th (HBO). An exhausted bird found on a gas production platform 45 miles north-east of Yarmouth Oct. 2nd released at Caister the same day (PRA).

**Pied Flycatcher:** Only small number of spring migrants: Wells/Holkham April 27th and May 13th, St Olaves May 9th and Waxham May 11th.

**Bearded Tit:** Concentrations include 35 Salthouse Jan. 9th, two parties totalling 60 St Olaves/Haddiscoe area Jan. 14th and 50 Strumpshaw Nov./Dec. None bred at St Olaves where regularly did so prior to 1978/9 winter, and only one breeding pair at Horsey.

**Golden Oriole:** Male singing Wiveton May 26th (MF, MPL, MPT), male Martham Ferry May 29th (BAB), two near Lakenheath May 29th (DJH) and a female Hickling June 4th (SEL). Three also present at a north Norfolk locality early June, but no evidence of breeding.

**Red-backed Shrike:** Spring migrants at Weybourne June 10th and Holkham next day. Breeding: Details of only 6 pairs received but Breck records incomplete. Total of over 20 autumn passage migrants at coastal localities Aug. 21st—Oct. 13th including 2 Winterton Aug. 30th and 3 Holme Sept. 1st—3rd.

**Lesser Grey Shrike:** Wash: One in Ringstead area July 22nd—Sept. 3rd. (HRR *et al*).

**Great Grey Shrike:** During first few weeks of year noted at Stiffkey, Cley, Salthouse, Beeston and Roydon Commons. Following cold weather in February only one record, Bridgham Heath March 3rd, until departing birds appeared end March at Wiveton and Salthouse Heath and April 10th at Winterton and April 14th at Strumpshaw. Autumn arrival Sept. 30th/Oct. 2nd with birds at Sheringham, Happisburgh, Winterton and Yarmouth followed by records from Cley, Strumpshaw and Roydon Common in second winter period.

**Nutcracker:** 1978 record: Gunton Oct. 6th (IWC).

**Hooded Crow:** Recorded up to May 9th and from Oct. 24th, but majority of records refer to 1—2 birds, continuing the scarcity of this species noted in 1978. Maximum number 5 Winterton April 13th.



Following a freeze-up in the Baltic, Sawbills became a feature of the opening months of 1979 both inland and in coastal waters. As many as 56 Goosanders (centre) assembled at Downham Market with 150 - 200 Red-breasted Mergansers (top and bottom) off Heacham. Some lingered until mid-April. *Photos: Pamela Harrison.*



**Rose-coloured Starling:** North: near Salthouse Heath and later Cley village May 19th—27th (many observers).

**Brambling:** North: male singing continuously Salthouse Heath June 17th—25th.

**Serin:** North: Additional 1977 record: female Wells May 1st (SCJ, NW).

**Siskin:** Breeding confirmed at Wells and also suspected near Santon Downham. Flocks include 50 wintering in St Olaves area, 30 Langford Hall (Battle Area), 60—80 Lyng Easthaugh in Nov. and 30 Lound in Dec.

**Twite:** Coastal flocks included 300 Titchwell Jan./Feb. and 500 Blakeney Point Oct. Two late birds at Cley May 6th. Inland at Hickling on Feb. 12th (18), Feb. 21st (30) and Oct. 10th (15).

**Mealy Redpoll:** Only one record received: 4 Winterton Oct. 28th.

**Crossbill:** Regularly recorded throughout the year in Breck (successful breeding noted at Cockley Cley, Gooderstone and Swaffham Forest), Sandringham area and St Olaves, and also in second half of year at Wells/Holkham. Elsewhere 4 Hickling March 25th and one Winterton Aug. 29th/30th.

**Scarlet Rosefinch:** North: Immature male in song Holme June 4th (HBO). The fifth county record.

**Hawfinch:** Breck: Records from Hilborough, Gooderstone, Methwold (2 flying young seen), West Acre, Foulden, Cockley Cley, Thetford, Swaffham Heath, St Helen's Well, Santon Downham, Brandon and East Wretham, where maximum of 25—30 Dec. 11th. Elsewhere Brancaster Jan. 7th, 3 Reedham Feb. 19th, 2 Holkham April 15th and 4 Oct. 20th, 2 Salthouse Heath April 21st, at least 6, including a large juvenile being fed Ringstead Downs early July, Pilling Park, Norwich Aug. 28th and 12 Roydon Common Dec. 12th.

**White-throated Sparrow:** 1968/9 record: It has recently been ascertained that the bird reported at Lowestoft from Nov. 16th 1968 until 1st Jan. 1969 was in fact seen, and later died, at St Olaves and hence is a belated addition to the county list.

**Lapland Bunting:** North: Only singles reported in Jan. at Morston and Holkham. Many more records from Sept. 23rd onwards Sheringham—Holme with maxima of 9 Titchwell and 13 Sheringham 23rd—25th Oct. North-east: 4 Paston Oct. 15th/16th and 7 Oct. 29th. East: Breydon 9 Jan. 3rd, 6 Jan. 24th and one March 30th, Halvergate present Jan./Feb. with maximum of 31 Jan. 14th, Winterton Sept. 16th, 20 south 29th, 12 south 30th, peaks of 6 in Oct. on 14th and 20th with last 3 Nov. 8th.

**Snow Bunting:** A late spring male Hunstanton May 5th and another at Winterton on the exceptional date of June 15th. Largest concentrations in second winter period with maxima of 350 Blakeney Point Dec. 9th and 200 Cley Dec. 24th. Inland: 95 Halvergate Feb. 25th and singles West Acre Nov. 12th—16th and R. Nene, West Walton Dec. 25th.

---

**Opposite page:**

**Ideal beaver habitat is shown at the top of the page: aquatic and emergent plants, shrubs and trees and open water. Hutwilersee, Switzerland. The beaver dam was in Brittany. The river was much reduced in flow in the drought of 1976. The beavers built a dam which fell into disuse when water levels returned to normal.**

*Photos by Nick Pinder.*

*The fine picture of a beaver, below, is contibuted by "Wildlife Studies".*

**Ortolan Bunting:** North: Holme Aug. 25th (HBO).

**Black-headed Bunting:** North: Cley male April 30th—May 3rd GJW *et al*). The first county record.

The following, not mentioned in the Classified Notes, were also recorded in 1979 (breeding species in italics): *Mute Swan*, *Canada Goose*, *Mallard*, *Kestrel*, *Red-legged Partridge*, *Grey Partridge*, *Pheasant*, *Water Rail*, *Moorhen*, *Ringed Plover*, *Dunlin*, *Jack Snipe*, *Common Sandpiper*, *Turnstone*, *Black-headed Gull*, *Herring Gull*, *Great Black-backed Gull*, *Guillemot*, *Razorbill*, *Stock Dove*, *Woodpigeon*, *Cuckoo*, *Green Woodpecker*, *Great Spotted Woodpecker*, *Lesser Spotted Woodpecker*, *Tree Pipit*, *Meadow Pipit*, *Wren*, *Duncock*, *Robin*, *Blackbird*, *Song Thrush*, *Redwing*, *Mistle Thrush*, *Grasshopper Warbler*, *Sedge Warbler*, *Reed Warbler*, *Lesser Whitethroat*, *Whitethroat*, *Goldcrest*, *Long-tailed Tit*, *Marsh Tit*, *Willow Tit*, *Coal Tit*, *Blue Tit*, *Great Tit*, *Nuthatch*, *Treecreeper*, *Jay*, *Magpie*, *Jackdaw*, *Rook*, *Carrion Crow*, *Starling*, *House Sparrow*, *Tree Sparrow*, *Chaffinch*, *Greenfinch*, *Goldfinch*, *Linnet*, *Redpoll*, *Bullfinch*, *Yellowhammer*, *Reed Bunting* and *Corn Bunting*.





# CONTRIBUTORS TO BIRD REPORT

S. AITKEN  
 B: AITKEN  
 R. ALLARD  
 C. APPLETON  
 C. APPLETON  
 J. ASPINALL  
 W. ATKINSON  
 N. AUSTIN  
 V. AUSTIN  
 K. BAILEY  
 M. BAKER  
 S. BANKS  
 T. R. BARKER  
 R. BEAL  
 G. F. BELL  
 T. BELSEY  
 S. BETTS  
 S. BIRD  
 H. BISHOP  
 V. F. BISHOP  
 M. BLACKBURN  
 R. BLACKBURN  
 MRS A. L. B. BLAKE  
 V. E. BLAKE  
 A. D. BOOTE  
 B. A. BOULD  
 T. E. BOULTON  
 G. S. BOWEN  
 R. L. BRADNEY  
 R. L. BRAND  
 MRS M. A. BREWSTER  
 B. J. BROWN  
 C. W. BROWN  
 D. BROWN  
 C. D. BROWN  
 P. BROWN  
 MISS M. S. BUCHANAN  
 A. L. BULL  
 R. M. BULL  
 S. J. BULL  
 G. BULLIVANT  
 S. BURROWS  
 C. I. BUSHELL  
 J. BUTCHER  
 R. L. BUTLER  
 J. BUXTON  
 M. CANT  
 MRS C. CARLSON  
 DR K. CARLSON  
 P. J. CHADDER  
 C. CHARMAN  
 R. L. CHIDWICK  
 MISS C. CHINN  
 R. L. H. CHITTENDEN  
 C. CLARK  
 MRS M. CLARKE  
 P. R. CLARKE  
 R. L. COBBOLD  
 B. A. COMBES  
 S. COOK  
 T. CORCORAN  
 MISS I. W. CORFE  
 H. P. CRAWLEY  
 E. A. CROSS  
 K: CROSS  
 T. P. DALE  
 A. DAVIDSON  
 D. A. DORLING  
 M. DUERDEN  
 S. A. DUKES  
 B. E. DUNMORE  
 C. DURRANT  
 G. M. S. EASY  
 C. EATON  
 E. A. ELLIS  
 MR & MRS T. H. ELLIS  
 P. ETHERINGTON  
 T. W. FAIRLESS  
 D. S. FARROW  
 J. FARROW  
 D. J. FISHER  
 M. FISZER  
 R. L. W. FORRESTER

MRS O. FOWLER  
 MRS J. E. GAFFNEY  
 A. J. GALE  
 S. J. M. GANTLETT  
 R. W. H. GARNER  
 MRS M. J. GATES  
 J. D. GEESON  
 MRS J. E. GEESON  
 H. C. GILL  
 J. GOLDSMITH  
 A. G. GORDON  
 P. J. GOTHAM  
 J. H. GREEN  
 P. A. GREGORY  
 REVD A. M. HANDLEY  
 M. HANNANT  
 B. D. HARDING  
 C. B. HARMER  
 K. HARRISON  
 R. H. HARRISON  
 J. G. HEADON  
 C. D. R. HERD  
 D. J. HEWITT  
 MRS J. C. HEWITT  
 D. J. HOLMAN

## *Holme Bird Observatory*

B. M. HOLMES  
 P. HOPE JONES  
 R. N. HOPPER  
 R. HORROCKS  
 M. HOWART  
 A. HOWES  
 M. A. HUMBERSTONE  
 P. M. HUMBERSTONE  
 C. J. HUMPAGE  
 A. W. HUMPHREY  
 B. W. JARVIS  
 A. R. JENKINS  
 MRS G. JENNER  
 H. E. JENNER  
 DR A. R. JENNINGS  
 MRS I. W. JENNINGS  
 N. R. JONES  
 R. F. JONES  
 S. C. JOYNER  
 P. KEARNEY  
 G. I. KELLY  
 J. KEMP  
 B. D. KERR  
 DR I. F. KEYMER  
 R. KIMBER  
 M. D. KINGSWELL  
 D. KIRK  
 C. A. E. KIRTLAND  
 C. R. KNIGHTS  
 J. E. A. LAMBERT  
 R. H. LAWRENCE  
 DR R. M. LEANEY  
 A. LEE  
 M. P. LEE  
 P. LEE  
 DR J. LINES  
 S. E. LINSELL  
 A. R. LOWE  
 M. R. LYNTON  
 DR P. A. McANULTY  
 MISS E. McEWEN  
 B. MADDEN  
 I. G. MANKLOW  
 R. C. MANSFIELD  
 G. S. MARSHAM  
 J. C. MARSHAM  
 K. MARTIN JONES  
 N. MEARS  
 J. MONSON  
 D. R. MOORE  
 N. H. MOORE  
 J. MOYES  
 H. F. MURLAND  
 P. W. MURPHY  
 R. MURRAY  
 E. T. MYERS

*NAR Valley Ornithological Society*  
*National Trust*  
*Nature Conservancy Council*  
 J. A. NEWBOULD  
 E. C. B. NEWMAN  
 DEACONESS K. M. NEWTON  
 J. NEWTON  
 MRS A. NORMAND  
 R. NORMAND

## *Norwich Y. O. C.*

P. J. OLIVER  
 S. C. OSLER  
 J. O'SULLIVAN  
 D. PAGE  
 J. G. PARKER  
 MR & MRS E. R. PARRINDER  
 S. G. PERRY  
 A. PIERSSENE  
 S. PIOTROWSKI  
 A. E. PLATT  
 M. POULTON  
 R. POWLEY  
 D. P. REDFORD  
 D. P. RADFORD  
 J. L. RAINCOCK  
 H. R. RAMSAY  
 A. P. RANDALL  
 D. I. RICHMOND  
 MRS R. M. RICHMOND  
 S. J. RODDIS  
 A. ROGERS  
 DR N. R. ROGERS  
 P. ROPER  
 R. ROUNCE  
 P. D. ROUND  
 MISS M. RUST  
 D. SADLER  
 K. SAUL  
 M. J. SEAGO  
 C. J. SHAW  
 K. B. SHEPHERD  
 N. SILLS  
 R. SKELTON  
 G. SMITH  
 J. L. SMITH  
 M. E. SMITH  
 P. SMITH  
 S. G. SOUTH  
 A. STONES  
 C. STRAKER  
 T. SUTTON  
 P. TATE  
 DR M. P. TAYLOR

## *Thetford Natural History Society*

W. THROWER  
 R. M. TIMMS  
 J. S. TRIMMINGHAM  
 D. TUTT  
 MRS B. M. E. UNSWORTH  
 A. E. VINE  
 R. E. WAKE  
 T. A. WALSH  
 A. W. WALTON  
 F. A. WARDMAN  
 G. WEBB  
 R. WEBB  
 G. L. WEBBER  
 M. G. WEBBER  
 G. J. WHITE  
 J. R. WHITELEGG

## *Wildfowl Trust*

C. WILSON

# NORFOLK MAMMAL REPORT 1979

## Editorial

The Editor is pleased to present the 24th Norfolk Mammal Report

Readers of the 1978 Report may have been surprised to be asked to submit contributions for the 1979 Report by the end of January 1979. More serious was the transfer of the town of Aylsham from its rightful position on the Norwich to Cromer road onto the B1149 between Holt and Norwich. The Editor apologises to the contributor concerned and to all members for these errors.

Our main article this year is by Nick Pinder who has spent some years in a serious study of the history of beavers in this country, their present status in Europe and the results of attempts to reintroduce them into seemingly favourable surroundings. In view of the recent publicity given to the possibility of reintroductions into parts of the British Isles, including East Anglia, it seems an opportune time to give members the benefit of his expertise. The article is illustrated by photographs from his portfolio on European beaver habitat.

One of the most astonishing photographs of a mammal seen for some time was submitted by Rod Powley and very regrettably it is not possible to reproduce it in this Report. Rod is a keen photographer of birds and erected his hide to photograph a pair of Reed Buntings feeding their young at the nest. The nest was very low and as he was setting up his camera he noticed a shrew waiting in cover and repeatedly darting out to take food from the youngster's throat when the adult had flown away and before the young bird had closed its beak. Fortunately he was able to photograph a further repetition of the incident. We are also indebted to this versatile naturalist for the new line drawings illustrating this Report.

The Editor thanks all who have sent in contributions. It is not possible to acknowledge them individually but all, however brief, are most welcome. Without the help and active encouragement of our contributors there would, of course, be no Report. Mention must be made too of the specialists who have continued, with great patience and kindness, to give their time and assistance. They include Dr I. Keymer, Veterinary Investigation Centre, Dr L. M. Gosling, Coypu Research Laboratories, Arthur Woodhams, Pest Control Officer, MAFF, Rex Whitta, Wildlife Ranger, Forestry Commission District Office, Santon Dowham and John Goldsmith, National History Department, Castle Museum, Norwich. John continues to deal with all queries regarding vertebrates addressed to him at the Castle Museum, Norwich NR1 3JU. Tel. Norwich 22233 ext. 649.

Notes for the 1980 edition of the Norfolk Mammal Report should be sent *by the end of January 1981* to R. C. Hancy, 124 Fakenham Road, Taverham, Norwich, NR8 6QH. Tel. Norwich 860042. Members are assured that they need not feel restricted to this one, formal, submission. The Editor is always pleased to hear interesting accounts and to discuss mammal topics at any time during the year.

# Beavers in Norfolk, their past and possible future

by Nick Pinder

THE BEAVER is familiar to all except the most parochial naturalist but the popular picture of a skilful lumberjack and clever builder is slightly wide of the mark. Decades of study are only now revealing the more prosaic, but perhaps more interesting, truth. It is important that this truth is understood by those with an interest in the countryside because, whatever the merits or demerits of the recent proposal to reintroduce the beaver to Britain, the proposal must be judged on scientific facts and not on opinions gleaned from the Walt Disney world of popular television and books.

At present there is no proposal to reintroduce the beaver to Norfolk, although in view of its history in this country there is sufficiently close an association to make the idea attractive. The recent identification of a pair of beaver jawbones in material taken from a 12th Century context in the excavations at Castle Acre gives Norfolk the honour of having the most recent remains in the country. Perhaps too much should not be read into the Castle Acre material, which has yet to be fully studied, for although the site is adjacent to what would, in Norman times, have been excellent habitat, the valley of the River Nar, animals could perhaps have been brought from France for festive purposes.

Beavers would certainly have been very scarce by this date as they have been intensively hunted since the dawn of history, so much so that in Denmark they became extinct in the Bronze Age, circa 1000 BC. They were hunted for their fur, of course, but also in these early days for their teeth which made fine cutting edges for tools. Beavers have been recognised since Roman times as providing amongst the most desirable of all pelts on account of the dense, soft and waterproof underfur. They were also important for their castoreum, a scent secretion largely composed of salicylic acid and other aromatic compounds. These do, in fact, confer some medicinal properties so some of the many remedies using castoreum cited by Pliny, for instance, have some scientific basis. Even in these early times, over-exploitation of the beaver occurred however and the demand for castoreum exterminated the beaver in the Danube delta.

By early medieval times, the importance of the beaver in commerce was well established and inspired exploration of first the Arctic coast of Russia and then the interior North American wilderness. The potential revenue from furs, especially that of the beaver, fuelled the race to explore Canada and several financial empires, including the Hudson Bay Company, were based on its exploitation. However, while France and England were warring over who was to control the lucrative fur trade, the beaver was gradually disappearing from its familiar haunts in lowland central Europe. In the 19th Century the all too familiar story of protection coming too late was destined to be played out in the case of the bearer. One year after its extermination in Sweden, for example, a law was passed giving it complete protection, while in Norway numbers were reduced to less than a hundred before a protective law was brought into force. As far as can be told from this distance in time, the turn of this century saw the lowest ever numbers of European beavers, something under 1500 animals in total at three localities in western Europe (the rivers Nid in Norway, Elbe in Prussia and Rhone in France) and eight localities, we now know, in Russia.

The result of over-exploitation of the North American beaver did not become apparent until the Thirties when Grey Owl began his campaign for their protection.

By then, however, several European countries had taken active steps to conserve the beaver. Russia had instituted a system of beaver farms and reserves and was actively engaged on restocking projects. France and Norway had passed protection laws and the latter country had supplied a few animals for reintroduction projects in both Sweden and Finland. The Finns also released seven Canadian beavers. Forty years later, in 1975, Canadian beavers comprised over 95% of the total population of some 4—6,000 individuals. The reason for the success of the North American species is unclear, although they do tend to have larger litters. However it is now known that they are separate species and earlier fears that they were interbreeding in those parts of their range where they co-exist would appear to be unfounded. Nevertheless, the success of the North American at the apparent expense of the European species is causing considerable worry in Scandinavia.

The differences between the two species are important since judgement of the feasibility of the reintroduction project must be based as far as possible on European data. It is invalid to assume that because the two species are so similar in appearance that their ecology is also similar permitting data to be used interchangeably without qualification. For not only is the North American species more prolific but its habits appear to differ in significant ways too. The classic mental picture of a beaver-dam, pond and lodge on a sparkling trout-filled brook set in magnificent conifer-filled scenery is almost mythological and certainly misleading. These pictures, deriving from North America, are used mainly because they are so spectacular and of course it is easier for us to read the American books and magazines in preference to the foreign language of our closer continental neighbours.

European beavers do build dams, of course, but far less frequently than one might imagine. For example, considerable excitement was created amongst the French wildlife fraternity in the 1950's when it was found that their beavers did occasionally build dams. They build lodges less frequently also, preferring wherever possible to excavate burrows in the banks of the river or lake. This behaviour has been extensively studied, in the wild in Russia for example, and in captivity in France. It appears in fact that burrow-digging is the ancestral behaviour, lodge-building having evolved from this behaviour over the millenia through the intermediary action of covering up the holes appearing at ground level resulting from the collapse of tunnel roofs.

It is now clear that dam-building is, in common with other aspects of behaviour, merely a response to a given stimulus. In this case the stimulus is an increase in the sound made by flowing water, indicating that the water level is falling. The response is to build a dam at the spot where the noise is loudest, that is where the water is shallowest, and although the dams are skilfully executed, waterproof constructions there is no true application of hydrological principals. The end result is a ponded-back reach of river giving security to the underwater entrance of the lodge or burrow and permitting the builder to swim safely rather than walk dangerously to the further end of his territory. This is successful often despite, rather than because of, the beaver's activities and superfluous dams are often repaired first in preference to those more responsible for holding water.

Tree-felling, too, is a rather haphazard activity although this important aspect of beaver behaviour remains to be properly studied. Despite the range of species that may be felled at any one site, and which may be in some stage of felling at the same time, we do not know if beavers are operating some system of selection or not. One often finds trees abandoned in the course of felling whilst others are felled overnight, and this raises the question of whether the beavers are sampling their potential food for some quality, like trace elements, undiscernable to the human eye. Although it is frequently related that the beaver can accurately fell trees in the right direction, this is not the case, the trees being in any case prone to falling in the water as the canopy on that side is better developed. Nor is there any truth in the medieval belief that

'slave' beavers were loaded up with timber then dragged off to the water on their backs. In any case the truth is perhaps a little more interesting for beavers also construct true canals, often over 100 metres long, for ease of travel and transport of food in low-lying marshy areas.

Trees are felled to provide food, of course, and even colonies with large lodges and many dams will use the left-overs rather than fresh material for building. This is because only the bark is eaten, the woody core being discarded. Nevertheless, given the 'image' of beavers it is surprising how little of their diet is composed of bark. In spring and summer beavers eat a very varied diet of leaves and twigs of many species of shrubs, rhizomes of aquatic plants and parts of most riverside and marsh plants, even dandelions which are a great favourite at certain Swiss beaver colonies. It is probably fair to say that beavers could eat almost any plant material and the list of their food plants, culled from the European literature is over 200 species long. But certain species are preferred above others, and certain sizes in one category of species. Thus for aspen, the most preferred tree, trees between 20 and 50 cm in diameter are felled in preference to either smaller or larger specimens. This is in contrast to most of the other tree species in the diet, where the smaller diameter is most usually preferred, giving rise to a negative frequency distribution curve. Willows are one of the most frequently felled trees and it is perfectly possible to pass through a patch of carr without being aware that beavers have been feeding in the area owing to the thinness of stem at which they prefer to cut willow.

Young beavers begin to eat solid food after only a month and start off on leaves and small twigs brought to them by the adults. When the young begin to forage on their own their cries can lead to the older animals giving up their own food for them. The very close family life of beavers is based on the mother; the other beavers respond far more readily to her warning signal, the famous tail-slapping of the water, than to other adults and she it is who is largely responsible for marking out the territory with heaps of castoreum-dosed vegetation. The female is the dominant partner of the adult pair and successful breeding on beaver farms is said to depend on selecting a pair where the female is the slightly larger animal. The male usually leaves the home lodge when the kits are born and takes up temporary residence in a nearby burrow. The home lodges must be quite crowded in early summer for not only are there young of the year but of the previous year too, and these do not leave home until they are two years old. These emigrating youngsters serve to colonise new areas, perhaps a stream where beavers died out for some reason, or a recently burnt watershed where aspen has begun to grow and the habitat become favourable.

Such close reliance on the home lodge led to population estimates being based on the number of lodges, but since it is now known that occasionally two or more lodges are built by the same family it is now considered safer to base such calculations on the number of winter stores. These are built, most especially in the north of their range, to tide beavers over the winter and are easily accessible under water even when the surface has frozen over. One family only builds one store and thus, knowing the average size of a beaver family, it is a simple matter to multiply the number of stores in an area by the requisite figure. In Europe, where the average litter comprises less than three kits, a family is usually assumed to comprise six beavers while in America, with their slightly larger litters, this figure is taken to be a little higher.

With litters of this size even the European beaver appears capable of multiplying rapidly. Certainly one successful season would see a situation where the parents, in biological terms, replaced themselves. By and large, however, beavers have stable populations and, except in the far north where plant growth is climatically inhibited, they do not appear to eat themselves out of house and home. Indeed the beaver was used by Wynne-Edwards as an example in support of his hypothesis of social control of population size. Whatever the nature of this control various factors come into play

to limit the size of beaver populations. In certain parts large predators can be responsible for some mortality, and even eagle owls are blamed for loss of young beavers in Russia for instance. There is a significant amount of pre-natal loss also and older animals can succumb to disease, particularly tularemia which occasionally reaches epidemic proportions in North American populations. Taken together with accidental loss, intraspecific aggression and deliberate and accidental killing by man it is, then, not surprising that beaver populations do not rapidly expand. In the most successful reintroduction project in Switzerland, for example, twenty years has been sufficient for an increase to only 60 animals from the original two pairs, and this in the absence of predators in ideal, protected habitat.

From the earlier discussion it will be clear that Norfolk, with its abundance of quietly-flowing waters and low-lying carrs provided ideal conditions for beavers. It will not be surprising then to learn of the richness of the collection of beaver material held by the Castle Museum in Norwich, particularly that which forms part of the C.B. Rose collection. This contains several jawbones, leg-bones, vertebrae and ribs from sites at Downham and Fordham Fens. Other remains have come from Burwell Fen and Southey Fen and it is interesting that all the attributable beaver specimens derive from the west of the county. This would seem to be due to the fact that drainage works were being carried out in the area at a time when collecting was an established pursuit, while the making of the broads, which undoubtedly would have revealed many skeletal remains, took place so much earlier. Research at the University of East Anglia has established the environmental conditions of the Yare and Bure valleys prior to the creation of the Broad, and incidentally shown that the beaver would have been at home here.

This prompts the interesting but difficult question of the effect of the absence of this large herbivore on present-day wetland habitats; interesting because the idea of reintroductions as creative acts of conservation is gaining ground but difficult because the environmental dynamics of even present-day ecosystems are poorly understood. The effect of beavers has been partly studied in the United States where it is generally acknowledged to be beneficial to waterfowl and course fish, by increasing the available habitat and cover, and in certain circumstances to herbivores such as deer to providing browse. The beaver is a more controversial character where game fish are concerned as, on occasion, a dam can cause an unacceptable increase in the water temperature. In sites where building of dams floods out trees, the presence of beavers can be important to hole-nesting, insectivorous birds such as wood-peckers. A recent experimental study of the effects of various habitat alterations to riparian forest, including some treatments mimicking the effects of beavers, showed such alterations to increase the diversity of both birds and small mammals. One is certainly inclined to think that beavers do have a beneficial effect overall, but while such aspects as the flow of nutrients and energy through beaver-inhabited wetland ecosystems remain to be investigated one can merely speculate. Speculation, though, is a valid intellectual exercise, provided it is declared as such. Finally, let us consider the possible effects of a large aquatic herbivore. Experience with the coypu has shown us that the beaver will keep waterways open, providing habitat for waterfowl even in still waters where the beavers would not build any dams. The coppicing effect of selective feeding on willows and alders must also result in the beaver having a considerable effect in retaining open marshes which otherwise would quickly scrub up into carr and eventually woodland. Is this the answer to the conundrum I term the "Paradox of the Bittern" which asks why creatures of open marsh such as the bittern, water-rail and bearded tit were able to survive when their habitat disappears at a far faster rate than that at which it is created?

Of course, the economic effects of the beaver must be assessed before any reintroduction can be contemplated but these should be clearly distinguished as a separate

argument since there are potential economic benefits as well as the undoubted risks, to timber crops in particular. This is not the place, however, to enter into these arguments and the topic of beavers in Norfolk must regrettably be left for the time being. It is to be hoped that this short account will have stimulated interest in the ecology of beavers. For further information the reader is urged to try the European literature where possible and a short list is appended to guide him:

*Rodents; their lives and habits.* Peter W. Hanney (David & Charles, 1975) contains a particularly interesting brief account of the fur trade.

*Mammals of the USSR and adjacent countries.* S.I. Ognev (1963 translation by Israel Program for Scientific Translations of 1947 original) pp 28-370 of vol. 5 give an authoritative account of beaver biology although the ecological material has been to some extent superseded.

*Return of the beaver.* Nick Pinder, Country Life, Feb. 7 1980 (167; 4309) pp 374-376. An account of the near extinction of the European beaver and its conservation through reintroductions, as well as giving examples of feeding and building behaviour based on observations of reintroduced and native beavers in Switzerland and France.

*My beaver colony.* Lars Willson (Souvenir Press & Pan) 1969 translation of a Swedish original. Delightful account of keeping and studying European beavers and the close observations that were possible of breeding, maternal and dam building behaviour.

## Classified Notes

### INSECTIVORA

Our contributor who uses the B1149 between Holt and the outskirts of Norwich regularly during the year noted 44 dead Hedgehogs *Erinaceus europaeus* on that particular stretch of road. It was noticeable that they were seen mainly in villages where there are gardens or in areas with hedges and deciduous, but not coniferous woodland. Most were seen at Heydon (12) Horsford (11) and Edgefield (9). In the open country through Cawston and most of the Haveringland—Hevingham stretch their numbers were very low: 1, 2 and 1 respectively. Another regular counter of road casualties noted 10 between Swaffham and Blakeney on July 30th and observes that July was almost without rain until 28th.. Other observers have noted an increase in casualties after a wet night. One late youngster at East Tuddenham found dried dog-meat, puppy size, much to its liking when it was foraging during daylight hours. It continued to make use of this very convenient source of food until the 1st January 1980 when it presumably hibernated. The happiest hedgehog story of the year was the account we read in the press of the seven motorists who spent up to a quarter of an hour waiting and watching a family party cross the road in Taverham.

The small mammal most frequently noted by the signs it leaves is the Mole *Talpa europaea*. By the number of mole hills and irate gardeners across the county it appears to be generally increasing. A long-suffering West Runton member tells of co-existence with one in the garden all through summer until less patient neighbours objected. An orange colour-variant was caught at Ditchingham. On February 18th mole runs were seen to be cracking the frozen snow surface at Corpusty.

From the many reports of Common Shrews *Sorex araneus* from widely scattered localities, including the centre of King's Lynn, it seems that 1979 was a good year for this insectivore. Cats will catch and play with them but find them distastful. One cat dropped its prey by the edge of a garden pond. The shrew swam to the other side and ran under a foxglove leaf but was still in view. With the cat looking on, it caught a worm and began to eat it, but was itself captured for the second time. After taking it a few steps along the garden path the cat dropped it, presumably having lost interest and the shrew ran off, no doubt still hungry.

Pygmy Shrews *Sorex minutus* were reported from 16 localities. In Wereham one was in the greenhouse and one under the stairs! Both species of shrew are often found dead and contributors are recommended to check identification features and look about systematically especially during late summer and autumn. Systematic searching by Dick Jones based at King's Lynn Museum has mapped many mammal species in West Norfolk including 8 sites in that area for the Water Shrew *Neomus fodiens*. Owl pellets produced another from Helhoughton Common while yet another was found dead in a garden at Thorpe End, Norwich. Others were seen at Cley and Holme Dunes. This was our best year for records of these fascinating little creatures.

## CHIROPTERA

The investigation of all kinds of old underground workings, carried out in the main by John Goldsmith, with the hopes of finding more winter roosting sites used by bats has continued to gain momentum and has produced more records of mainly Daubenton *Myotis daubentoni* and Natterer's *Myotis nattereri* bats. Most of the old ice-houses, chalk workings, kilns and tunnels have probably been located now, but just in case any have been overlooked, any information regarding possible sites would be appreciated. Further Noctule *Nyctalus noctula* sightings were reported from Hethersett, East Tuddenham, Bawburgh/Melton, Snettisham and Ludham.

The commonest sightings of bat species was of Pipistrelles *Pipistrellus pipistrellus* and a number of these were confirmed by the finding of dead specimens, some of which came to the Editor, carefully wrapped in plastic bags, through the post. Small mammals are surprisingly light in weight and add little or nothing to basic postage rates. One of these was found inside the church at Castle Acre. Churches have traditionally, with justification, been regarded as suitable sites to look for bats and also for barn owls, those good friends of mammal recorders. Both are becoming much more difficult to find and a systematic look at churches in East Norfolk hoping to find owl pellets to analyse has produced disappointingly few. It is, on the brighter side, good to realise that so many more members are taking an interest in chiroptera, this least understood and most misunderstood group of mammals, some of them making the effort to overcome the irrational repugnance that has further estranged the group from so many people.

There was great excitement in September when it was thought that we had the first county record for Leisler's Bat *Nyctalus leisleri*. The specimen in question was a road casualty at Snettisham. Leisler's bat belongs to the same genus as the Noctule which it



resembles but is distinguished mainly by its smaller size, by colouring and by detailed measurements. These latter, when re-examined by the appropriate experts, eventually dashed our hopes and proved that we had another Noctule.

Perhaps our disappointment can be a little assuaged by the definite record of a *Barbastelle* *Barbastella barbastellus* which was found hibernating in a disused lime kiln on January 24th in West Norfolk. It is assumed that it moved there during the very cold weather and it was not to be found on February 20th when the site was examined again. Hibernating bats do move from site to site during the winter to find most suitable levels of temperature and humidity. There are previous records of this bat in Norfolk but no positive identifications have been made for several years.

## LAGOMORPHA

The extremes of the colour range were reported during the year amongst the rabbit *Oryctolagus cuniculus* population. A white one was seen at Brancaster Staithe and a black one at Oulton Park. From the numerical point of view the extreme contrasts between localities mentioned in recent years did not seem to recur. The hard spring held back the breeding season and when the population did begin to rise more consistent attempts at control aided by myxomatosis in many districts kept a check. Where rabbits have been relieved of both of these constraints naturally they are very much in evidence. As each season passes so the emphasis lies more with the former rather than the latter as young inherit resistance to existing strains of the disease. A five to six-week old young rabbit was seen at Edgefield on December 2nd. On Bacton Gas Site they have discovered the advantages of living in the concrete cable ducting.

It is very difficult to assess the true situation regarding the Brown Hare *Lepus capensis*. Most contributors repeat the story of the past few years and tell of fewer sightings, particularly in Central Norfolk. However, many go on to report a much healthier situation in a particular area, notably the Yare and Waveney Valleys, the marshes approaching Breydon being quoted by several observers. More have been seen on some of the Norfolk Naturalists' Trust reserves. Our "roving reporter" from Swaffham who travels extensively round Norfolk throughout the year sends the following information: Road casualties plus live sightings in 1977 — 125, in 1978 — 92 and in 1979 — 61. Quite dramatic figures from this one source of information. Many factors are involved, not least the increased popularity of hare as a delicacy.

## RODENTIA

The Red Squirrel *Sciurus vulgaris* was able to maintain its numbers on Forestry Commission land in Breckland but apart from that the picture was uniformly depressing. Dr Ian Keymer is still trying to continue his investigation into "red squirrel disease" but his chances of success are obviously vanishing rapidly. Naturally he would welcome any recent corpses of red squirrels at the Veterinary Investigation Centre, Jupiter Road, Norwich, and probably better still, information of any squirrel that is still alive but appears to have contracted the disease. He tells us that during the year he saw no red squirrels at Horsford or Felthorpe, an area he knows well. Some other old strongholds could muster no more than a single sighting and still others none at all. References have come from scattered localities in the West of Norfolk, from Corpusty, Itteringham, Sprowston, Blickling, Wells, Stanford, Briston, Holkham, Marsham Heath, Swaffham, Dilham and Wretham Reserve.

The list of place names that could be printed for the Grey Squirrel *Sciurus carolinensis* would take up an overlarge portion of the report. Their natural rate of increase more than kept up with the large numbers killed and many contributors tell of finding them in previously unlisted districts. The grey squirrels lack of concern over crossing extensive open areas and their boldness are both illustrated by the one that was seen sitting on the window sill at the Hewitt Senior School, Norwich, in May. These factors do make it much easier to see greys than reds but against this there is their ability to exploit habitats quite closed to the reds to which must be added their much smaller territorial requirement. We are reliably informed that there are now more grey squirrels in the Stanford Training Area than there were red squirrels at their peak.

There were few reports of the Bank Vole *Clethrionomys glareolus* which probably reflects upon the number of observations rather than the number of voles. This is certainly where an examination of what the cat has caught may well prove informative. Short-tailed field voles *Microtus agrestis* in Corpusty found shelter during the cold February under a shed roof that had been displaced by the wind onto the ground. Later in the year they nested under a sheet of tin in the garden and often had a toad for company. When the time came to cut the long grass in September, young voles, toads and frogs had to be rescued before the operation could take place. In Pulham, a Short-tailed field vole was found dead by the roadside on September 23rd and when examined was found to be carrying three ticks the largest of which measured about 7 by 4 mm. Water Voles *Arvicola terrestris* were recorded at thirteen county-wide sites.

The Wood Mouse *Apodemus sylvaticus*, a widely distributed and numerous species, received the number of mentions more in keeping with its status than in previous years. As can be expected with such a common mammal, all sorts of odd individuals are likely to turn up. A "pied" specimen, covered with white blotches was caught in Holt and in West Runton one was observed sharing food put out for birds on two days in November. Two contributors speak of small rodents on the road at night. One definitely saw more Wood Mice on roads near Buxton and the other has seen small, leaping rodents on roads on windy nights, assumes they are Wood Mice and asks if others have seen the same kind of thing. Perhaps we will have some comments for our next report.

The Harvest Mouse *Micromys minutus* was recorded in seven locations. Nests were found near Dereham and Strumpshaw and there were owl pellet remains from Helhoughton Common. The other four were found in the West Norfolk Survey.

Living up to its name and popular image, examples of the House Mouse *Mus musculus* were caught in the greenhouse and under the stairs at Wereham and in a corn bin at Erpingham. Elsewhere they were up to normal numbers. Members of the Brown Rat *Rattus norvegicus* species seemed to be trying to prove their names wrong for both white and black colour variants were seen. These latter were all examples of the common or brown rat and not the ship, or black rat *Rattus rattus* which has not been recorded in the county for many years. Where they do occur there is considerable colour variation, far more in fact than in the brown rat. Returning to the Brown Rat, the following set of road casualties counted has been submitted:— 1977 — 52, 1978— 107 and 1979 — 93. Other contributors mentioned high numbers and indeed one went so far as to use the expression "plague proportions". This was from an area that would appear to be well managed and demonstrates the ability of this highly adaptable rodent to make full use of the slightest advantage.

Dr L. M. Gosling sends the following report on Coypu *Myocastor coypus* and takes the natural annual cycle, spring to spring, this being the best way to give an accurate assessment of the situation: "About 6,409 coypu deaths were recorded during 1979 and 5,571 of these (87%) were killed by the trappers of coypu control. This total was 45% lower than that recorded in 1978 and this decline reflects the impact of the 1978/79 winter which, although not approaching the 1962/63 winter in severity, was none-the-

less cold enough to give the population a set-back. However the year total does not reveal the rapid increase in numbers in the last half of the year. This followed a period of summer breeding when nearly all of the adult females in the population produced litters after conceiving at the end of the winter. Significantly for these young the 1979/80 winter was of a mildness comparable with those of the 1970-75 period when coypu numbers increased rapidly. As a result the kill rate, and the live population in the spring of 1980 are back to the levels of the autumn of 1978.

These events demonstrate once again that the existing Coypu Control trapper force is not large enough to prevent the population from increasing between years separated by a mild winter. Additional cause for concern is further evidence that the range of the population is increasing: in the first few months of 1980 confirmed reports had already been received from three sites between Colchester and the Blackwater estuary. Evidently the 1978/79 winter did not eliminate outlying colonies as appeared to be the case in 1962/63."

## CETACEA

There were few records of the group during the year and these were confined to the occasional common porpoise *Phocoena phocoena* seen off Holme and the one dead specimen washed up on to the beach there in October.

## CARNIVORA

The Fox *Vulpes vulpes* is another mammal that arouses very mixed and variable emotions. In some districts it needs every bit of its proverbial cunning to escape the lethal hand of its one enemy. One large West Norfolk estate, for example, is reported to have killed 400 foxes during the past eight years, an average of roughly one per week. The fact that there are still foxes in the district suggests that it is an extremely resilient species and that local conditions must be very favourable. It would be interesting to learn how soon the vacuum is filled after the death of the previous territorial occupier. In contrast, the Editor has spoken to two farmers within a few days of writing these notes who have expressed great pleasure in the presence of foxes on their land and given it as their opinions that a state of balance exists between them and the wild rabbits. A few reports spoke of lower numbers, for example at Horsey and one highly organised fox shoot in North Norfolk produced no prey during two hours of beating. However, the overall situation appears to be favourable from the fox point of view.

Reports of Badgers *Meles meles* in the eastern half of Norfolk passing through a garden and exploring an old sett keep the hope alive that there will eventually be recolonisation of old setts. It is very pleasing to know that many people are prepared to give this larger carnivore the benefit of the doubt. Strictly speaking they are omnivorous and the most important single item of diet is the humble earthworm. Three badgers were reported to have been caught in snares set for foxes, but were released. The most significant item of news was the report that Lord Melchett had seen one of the female badgers on his farm at Ringstead emerging from the sett with three cubs. The significance is that the colony was restocked with young badgers that had been bred at the Norfolk Wildlife Park. This is the first successful attempt to establish a breeding colony of wild badgers from stock bred in captivity.

It is sad we cannot describe a similar success with Otters *Lutra Lutra* but with this species the story becomes more depressing. Only the preservation of suitable habitat



can really justify any optimism for the future and this diminishes or is put under threat faster than counteractive steps can be taken. There are so many interests and so many authorities involved that even rapid emergency action to help one of our few remaining pairs proved to be impossible in July when a pair was seen using a quiet broad at Wroxham, a haven for wildlife. The broad was due to be "developed" and "improved" for the use of boats and the process could not be halted. How we abuse our language as well as our wildlife!

There were ten reports of Stoats *Mustela erminea* in ermine or partial ermine during the spring of 1979. There is the possibility that three of these may have been the same animal seen along the Hockham to Wretham road but others were seen at Santon Downham, Barnham Common, near Swaffham, one killed by a cat at Saham Hills, Irmingland Hall, Munford and West Runton. The overwhelming majority of these it will be noted were in Breckland. A normally marked stoat was seen to make five double journeys carrying food across the road at Stradsett. Less successful was the one watched on the road near Blickling church where it chased a rabbit backwards and forwards. Finally the rabbit went into one hedge and the stoat into the other. Perhaps the policeman watching with our contributor put it off! At Fustyweed gravel pits a stoat was seen to make what seemed an inexperienced kill of a rabbit and was surrounded by a group of birds including five yellow wagtails. The stoat dropped the rabbit and made a dive at the nearest wagtail which only just managed to escape.

Weasels *Mustela nivalis* were frequently recorded and presumably had a numerically good year. A single-minded individual trotted along the path beside the forest at West Harling, looking neither to right nor to left, sniffing incuriously as it passed within a yard of the observer. It transpired that it had also passed by two other members of his family in the same way some half mile distant. Cats at Itteringham were seen to account for two weasels.

American Mink *Mustela vison* were reported from Salthouse and the Waveney. Most of the sightings made over the years of these carnivores have come from members of the coypu trapping team.

## PPINNIPEDIA

A seal was reported in the Yare at Reedham in April while at the other end of the county and the year a Common Seal *Phoca vitulina* was in the Ouse at Wiggshall St Germans. The greatest number of common seals reported to have been counted at any one time was 80 at Blakeney July 13th. Grey seal *Halichoerus grypus* pups were found on the beaches during the autumn but not to the same extent as during the previous year.

## CARTIODACTYLA

Norfolk is very fortunate in the number of deer and variety of species living here. We have the variety of habitats that suit various members of the Cervidae family both native and introduced. Not that the picture is without its darker patches for the knowledge that deer are in the district spark off varying reactions.

Our two recent additions to the list, the Muntjac *Muntiacus reevesi* and the Chinese Water Deer *Hydropotes inermis* being small, and very secretive, have been able to maintain and probably enlarge their foothold here. The extremely difficult conditions in the spring did take its toll particularly of the latter but many survived and the species appears to be taking in more territory in Broadland. Probably the best view was had by David Brown, Warden at Ranworth Conservation Centre, during the very cold spring, who was able to watch a Chinese Water Deer slowly crossing the frozen broad, occasionally stopping to prick its ears towards unexpected but not alarming sounds. In normal conditions there are so many places in Broadland where a small deer can safely tread but a man would be very unwise to follow. The Muntjac has been able to find enough dense, drier woodland and although sightings are few, indications are that it is doing well, especially in the western half of the county.

The greatest concentration of deer is in Thetford Forest which holds quite large numbers of Roe Deer *Capreolus capreolus*. They seem to have few real problems apart from loose dogs, more their thoughtless owners, and motor-cars. Other districts can produce their Roe deer but again in the west.

As we continue to increase in physical size the story becomes less happy. The white and black herds of Fallow Deer *Dama dama* in Houghton and Melton parks continue in their artificially protected conditions but outside the larger deer have more than natural pressures to content with. The small but thriving feral herd in the Felthorpe—Horsford—Taverham area now has a large query mark against it, placed there by latter-day Robin Hoods.

Red Deer *Cervus elephus* slots and sightings were reported from scattered localities. It is amazing how such a large and seemingly conspicuous animal can fade into the background and often when positive identifications have been made observers are not always able to make accurate counts. Small parties can be said to move about certain parts of Norfolk but the greatest numbers, though reduced in size and quality is the forest herd at Thetford. We hope the vigilance of the rangers will enable it to continue.

# CONTRIBUTORS TO THE MAMMAL REPORT

P. R. ALLARD  
E. ANDERSON  
R. BOYD  
J. BUCKLEY  
A. BULL  
MRS R. BULL  
J. J. BUXTON  
MRS M. A. BREWSTER  
J. CHARMAN  
R. COBBOLD  
E. T. DANIELS  
D. A. DORLING  
T. S. DURRANT  
*Eastern Counties Newspapers Ltd*  
K. FISHER  
MRS O. FOWLER  
MRS J. E. GAFFNEY  
J. GOLDSMITH  
DR L. M. GOSLING  
J. H. GREEN  
N. GREEN

R. GRIBBLE  
C. HANCY  
R. HANCY  
R. C. HANCY  
M. HARDY  
R. H. HARRISON  
R. HOBBS  
A. HOWES  
R. JARVIS  
K. S. KELLY  
G. JESSUP  
MRS B. JOLLY  
R. E. JONES  
DR G. KEELE  
DR I. F. KEYMER  
MRS J. KEYMER  
P. LAMBLEY  
DR R. LEANEY  
MISS D. A. LEAKE  
R. C. MANSFIELD  
M. MEECHEM  
*Nar Valley Ornithological Society*

C. NEALE  
J. A. NEWBOLD  
DEACONESS K. M. NEWTON  
MRS D. NICHOLS  
N. PINDER  
DR C. P. PETCH  
J. L. RAINCOCK  
A. SAVIOUR  
A. SCOWAN  
C. SHINGLES  
J. SHORTEN  
A. SPEAKMAN AND FAMILY  
A. E. VINE  
G. WEBB  
R. WHITTA  
I. WHITWORTH  
A. R. WILLIAMSON  
A. WOODHAMS  
*Young Ornithologists' Club*  
*(Norwich Branch)*



1973	East Winch Common	...	...	...	80	Gift	S.S.S.I.
1974	Sparham Pools	...	...	...	30	Agreement	---
1975	Pope's Drift	...	...	...	8	Agreement	---
1975	Wayland Wood	...	...	...	80	Purchased	S.S.S.I.
1977	Hockering Wood	...	...	...	200	Agreement	
1978	Syderstone Common	...	...	...	60	Leased	
1978	Lolly Moor	...	...	...	7	Purchased	
1980	Booton Common	...	...	...	19	Agreement	S.S.S.I.

In addition, the Trust shares with the National Trust in the management of the coastal reserve at Blakeney Point (1,335 acres), and it manages Arnold's Marsh, Cley (29 acres) on behalf of the National Trust.

By arrangement with the Nature Conservancy Council, Scolt Head Island, Ranworth Broad, Hickling Broad and the Breckland Heaths now form part of the National Nature Reserves.

\*Status: N.N.R. denotes National Nature Reserve  
S.S.S.I. denotes Site of Special Scientific Interest

† In 1966 Cley Reserve was established as a Bird Sanctuary under the Protection of Birds Act, 1954.

THE NORFOLK NATURALISTS TRUST

# Bird Watching



Excellent bird watching facilities are available from 1st April to 31st October at Hickling Broad National Nature Reserve, Cley Marshes Bird Sanctuary, Holme Dunes Nature Reserve (self-contained flat available all year) and Broadland Conservation Centre, Ranworth. Reduced rates for members, party bookings and extended periods.

For full particulars kindly forward stamped addressed envelope to **N.N.T., 72 The Close, Norwich, Norfolk NR1 4DF**

