

THE ROYAL AIR FORCE ORNITHOLOGICAL SOCIETY

‘WINTER DUCK 4’ (2005) to ‘WINTER DUCK 7’ (2008)

WETLAND BIRD SURVEY COUNTS

in NORTH-WEST and NORTH SCOTLAND

By Flt Sgt John N Wells *MSM MISTC Aff IEMA* and Martin K Wightman *BA Hons*

Introduction.

Data on over-wintering diver species and other birds recorded under the Wetland Bird Survey (WeBS) scheme was identified as a priority by the British Trust for Ornithology (BTO), particularly in the less accessible and hence less well covered areas of the UK. Following on from an approach by the BTO to the Royal Air Force Ornithological Society (RAFOS) on this subject, RAFOS agreed to put a team into the field to survey the northwest coastline of Scotland in the winter of 1998-1999. The intention was to gather data on wildfowl, in particular Barnacle Goose (*Branta leucopsis*) and Greylag Goose (*Anser anser*) and to get a baseline of data on ducks, divers and grebes wintering in the sea off the coast, on coastal sea-lochs and close-by inland water sites. The team was led by Sqn Ldr (Ret'd) Martin Godfrey. A report of the survey was published in RAFOS Journal No. 28 (Godfrey 1999). That survey has subsequently developed into an annual event in the RAFOS calendar and is generally referred to within RAFOS as 'Winter Duck'.

The intention of this paper is:

To highlight the importance of some of the diver and grebe results from RAFOS surveys over the four years 2005 to 2008 and their interpretation as shown in the Tables of Species Accounts from the WeBS Annual Reports (Waterbirds in the UK – The Wetland Bird Survey) as referenced below.

To highlight any trends or mathematical findings within the diver and grebe results.

To highlight the importance of some of the data in particular relating to the family *Gavidae*.

To report on the four years worth of data amassed from the surveys to the Society members via inclusion in the RAFOS Journal, a pre-requisite for expeditions, notwithstanding the full species Systematic Lists held by the Recorder Martin Wightman.

To highlight other interesting species accounts.

This paper also covers the planning and delivery of the surveys which use the so-called 'look-see' methodology (Bibby et al. 2000) using the Core Count Single Visit (CCSV) technique. The WeBS observations form the principle study of wetlands, open coast, sea lochs and lochans in the UK.

Aims.

The surveys' aims have principally been those of the 1999 survey but with emphasis on recording diver totals, which have greatly added to the BTO information on over-wintering populations in UK coastal waters. In addition, the team collated sightings of all species seen during surveys and in 2007/08 additional species records were added as Roving Records for The BTO Bird Atlas 2007-2011. Supplementary passerine and waterbird records from the four years study have been passed to the Highland Bird Club by M K Wightman.

General.

The survey has been repeated over a number of years since the first survey in 1999 and, apart from surveys not being conducted in 2002, 2003 and 2004, thirteen such surveys have been conducted as of February 2014.

The RAFOS teams' survey efforts differ from the established WeBS Monthly Core Counts due to the restricted survey periods and available time to visit this remote area such that yearly counts via 'one-off' Single-Visit-Core Count (SVCC) surveys are conducted in lieu. The BTO recognised that by its nature the region is less densely populated and as such has fewer bird counters or ornithologists able to undertake counts. Also due to the distances involved to reach these remote coastal areas very little was known about the species totals using the region apart from a few coordinated 'spot' counts by BTO/WWT volunteers.

Through visits to NW and N Scotland sites and capturing yearly SVCC data a picture has built-up of birds using the different wetland habitats of this area. Principally RAFOS teams count open stretches of sea, rugged shorelines, sea lochs and some slightly inland large, medium and small lochs, including very small lochans.

Team Composition

The survey logistics such as vehicle size and space for baggage and rations, accommodation size and bedroom numbers dictated that we planned each team size. Usually, for safety reasons, between nine and thirteen participants were required to comprise the three teams. To date we have maintained a minimum of three per team, including a driver, backup driver and a safety-runner, (if an emergency call is required to be made). This latter event has, thankfully, not yet occurred but the teams have encountered some very harsh winter elements and icy road conditions. The three teams have been called upon to assist local travellers stuck in snow or with a broken-down vehicle on numerous occasions.

Over the years the teams have evolved into a mix of experienced survey participants and the less experienced or new RAFOS members who want to sample the survey, the elements and the wild country over the winter in the region. Such mixing has improved the overall identification and recording skills of the team members of which some also participate in WeBS when at home within the UK so adding to the skills of the team on 'Winter Duck'.

RAFOS participants and respective year's attendance:

Name	2005	2006	2007	2008
Martin Wightman	√	√	√	√
Jim Bryden	√	√	√	√
Steve Heather	√	√	√	√
John Wells	√	√	x	√
Stan Christophers	√	√	√	√
Jerry Knights	√	x	x	√
Gerry Bilbao	√	√	√	√
Bob Bosisto	x	√	√	x
Kevin Cairns	√	√	x	√
Maggie Sheddan	√	√	√	√
Terry Carne	x	√	√	x
Tom Dewick	√	√	√	√
Nigel Crowhurst	x	√	x	x
Veronica Wooton	x	x	√	√
Clive Watson	x	x	√	x
Ian Drake	√	x	x	x
Team Total	11	12	11	1

Sites

Each site was allocated a WeBS Count Unit Code for continuity to facilitate future counts. Stretches of sea coastlines, larger open sea-lochs and estuaries were designated as 'large sites'. These were split into a number of smaller sectors, each having an allocated Sector Count Unit Code linked to the main site, e.g. Inveralligin on Upper Loch Torridon (ULT) is listed as ULT Inveralligin. Smaller sites, i.e. single lochs, lochans and short stretches of coast have their own Count Unit Code. Usually these are sites which are visible from one or more points and which can be readily counted.

Survey Techniques

The RAFOS team were split three-ways with Team 1 based at Mellon Charles RNE Aultbea (2005, 2006), and since that time at JSMTTC Dundonnell (2007, 2008), team 2 based at Elphin and team 3 based at Thurso, Backpackers Lodge (2008) and at the MOD Range Hut at Farraid Head near Cape Wrath.

From these locations the three teams worked for four days, Sunday to Wednesday, on surveys within their assigned areas before heading back to base camp (now JSMTTC Dundonnell) such that on the Thursday the teams were combined to survey the southern sector areas of Loch Carron to Shildaig and from Upper Loch Torridon to Loch Diabeg. Friday was usually a free day if all the WeBS survey areas are completed. This day is then used for general observations or for following-up on particular results.

The survey technique dictated a very early start with breakfast eaten and a packed lunch prepared before leaving at approx 06.30-07.00 with a drive usually in the dark to the first dropping-off point to commence surveying at first light. Larger sea lochs or inland lochs were split into sectors. This is a recognised technique where additional ad hoc data are sought for important sites not otherwise covered by regular monitoring; particularly open coast sections of Scotland. (Banks, A.N. et al. 2006).

The accuracy of waterbird counts on the sea is particularly dependant on prevailing weather conditions at the time of, or directly preceding, the count. Birds are often distant from land, and wind and rain can cause considerable difficulty with identifying and counting birds. Wind not only causes telescope shake, but even a moderate swell at sites without a high vantage point can hamper counts considerably. Such adverse conditions may result in counts missing a significant proportion of one or more species. It is important to flag such counts since using them at face value would under-represent the importance of the site and give misleading results, e.g. when used for trend calculations and assessment of site importance. (Banks, A.N. et al. 2006). Where poor visibility due to fog, precipitation, high wind, choppy water, etc, or disturbance due to dog walkers, kite surfing, aircraft, etc, the potential effect upon the count is reflected by entries on the WeBS forms to show either a low or assessed number on the permissible discrepancies.

Counts at sites, and at individual sectors of large sites, (known as complex sites), were counted using a series of sub-divisions. The counter flagged these as OK or Low, with Low indicating that the counter feels a significant proportion of the birds present at the time of the count may have been missed, e.g. because all or part of the sector was not visited, or because a large flock of birds flew before counts were complete. Such assessments may be provided for individual species, or for all species present. (Banks, A.N. et al. 2006).

Survey Dates

The following survey periods are covered in this paper and reflect the data gathered and submitted to the BTO:

2005	February 5 th -11 th
2006	February 4 th -10 th
2007	February 3 rd – 9 th
2008	February 1 st – 9 th

Weather in the Arctic

To give an understanding of how weather affects winter migration of divers and waders, etc, to UK waters of high-arctic breeders, divers in particular, we have provided a link to a Russian website and 'live' database. This is kindly provided by the International Wader Study Group, Moscow State University and forms a link to a study of numerous breeding sites. Within the web-site are facts on breeding totals, weather data, predators and prey [of species], i.e. food specific to raptors, and thus shows effects on the numbers of birds potentially visiting UK waters. This web-site contains statistics on many species of breeding birds that visit the UK in winter, and we suspect, such statistics have a direct impact upon WeBS results.

Arctic breeding data on birds that winter in the UK are summarised from information collated by Soloviev & Tomkovich at the web site <http://www.arcticbirds.ru/>
[Arctic Birds - Database: arcticbirds.net](http://www.arcticbirds.net) The data is set out as a newsletter which our readers may find informative and could be read alongside this paper. Use the site if you wish to further your knowledge of high-arctic species; waders/divers etc.

The web site & newsletter also contains Arctic climate statistics [criteria being filtered by year], which reflects how it is quite variable. It includes both polar maritime (influenced by the ocean) and continental (influenced by large land masses) climate sub-types. The Greenland ice sheet and the Arctic Ocean maintain cold temperatures throughout the year, but the tundra-covered coastal fringes warm up each summer for a brief period. The main climatic variable in all Arctic areas is the extreme fluctuation of incoming solar radiation: long, dark winters followed by short summers.

Summary of UK Weather over the Survey Period – 2005-2008

Data covering the four years of surveys has been drawn from the Meteorological Office web site at www.metoffice.gov.uk

2005

Jan. A very mild month across the whole of the UK. In terms of mean temperature, it was the warmest since 1990 for the UK as a whole. Rainfall: well above average over most of Scotland, and parts of Cumbria and N Wales.

Feb. A mild first half to the month, but then turning cold with snow over the second half. Mean temperatures generally above average, with the closest to average temperatures over the SE, and the most above average being over Scotland. Milder westerly winds returned between the 7th and 11th as a deep depression near Iceland moved into the Norwegian Sea. Its associated front brought rain on the 8th and 9th.

2006

Jan. Anti-cyclonic and dry at the start and end of the month

Feb. High pressure covered the British Isles during the first four days of February. On 1st and 2nd it was cloudy over much of Scotland but it was clear over the central Highlands and Grampian region with severe night frost. On the 1st the temperature at Aviemore ranged between -12 °C and -1 °C. By the 4th a light westerly wind developed and the cloud broke more widely with much milder conditions and the temperature reached 13 °C at Aboyne.

From the 5th to the 7th the anticyclone was centred near the western English Channel and a mild westerly airflow covered Scotland. It was cloudy with rain, mostly in the northwest, and on the 6th the temperature reached 13 °C at Tain. The anticyclone shifted to the mid-Atlantic on the 8th before advancing to cover the country on the 10th. Northerly winds that gusted to 59 knots at Kirkwall brought showers to the north but the weather soon settled down with sun in the south.

2007

Jan The wet and mild conditions continued into January, western areas experienced markedly high rainfall with the exception of parts of Scotland.

Feb. For the most part conditions were wet especially in central and eastern Scotland.

Ice Coverage 2007 – The percentage of ice cover is recorded on WeBS forms for inland sites. We also used this box where ice was present at coastal sites but in the main there was little or no ice coverage at such sites.

Table 1 – Ice Coverage WeBS Data: for comparison. (Austin et al 2008).

The number of inland sites (lakes, reservoirs, gravel pits and canals) with any ice and with 75% or more of their surface covered by ice during WeBS counts in Jan & Feb 2007 for Scotland are tabulated.

Region	Ice	Jan	Feb
Scotland	>0%	9	5
	>74%	4	2

2008

Jan. Very unsettled. The wettest January on record for the Scotland E climate area, with Edinburgh also having record rainfall.

Feb. Between the 1st and 9th the mean temperature was generally 1.5 °C to 2.5 °C which was above average across the UK. The month started on a very cold and wintry note with frequent sleet and snow showers in many areas. North to northwest gales caused blizzard conditions. Stornoway (Western Isles) recorded a gust of 71 m.p.h.

Systematic Species Lists

It would be inappropriate to give data for all of the survey areas in every year, so we have selected some interesting records and comparison tables on the three main Diver and Grebe species in the areas visited. The data is similar to those produced in Waterbirds in the UK 2004/05 (Banks, A.N. et al. 2006) and we thank the BTO for permission to replicate the tables here.

Prior to RAFOS involvement a WeBS BTO/WWT team conducted a 'pen picture' survey to understand the region. They could not support the efforts and costs in mounting full surveys and approached RAFOS for support. Dr Peter Cranswick and Martin Godfrey then proposed a scheme, at a meeting at WWT Slimbridge, which was approved by the RAFOS Committee and resulted in the RAFOS 'Winter Duck' surveys. The records below relating to the RAFOS surveys of 2005 to 2008 are supplemented by additional earlier WeBS survey results.

The order and nomenclature adopted in this report follow those used in The 'British Birds' List of Birds of the Western Palearctic (1997 and as amended).

Results

Via the survey data sets submitted by the RAFOS teams, the BTO has recognised the efforts made in contributing valuable data and in reducing the previous gaps in coverage to the benefit of the wider picture for The Wetland Bird Survey Reports 2004/05, 2006, 2007, 2008.

The BTO has supported the team's efforts with administration such as Core Count Single Visit (CCSV), pre-printed survey forms along with count sector maps plus advice and assistance on the data sets produced.

Dr Andy Musgrove of the BTO WeBS Unit has commented favourably upon the continuity of the work by the RAFOS teams. Our contribution to the overall success of the WeBS scheme has been documented in 'Waterbirds in the UK' (Austin et al. 2008). RAFOS continues to support The Wetland Bird Survey (WeBS) Unit at the British Trust for Ornithology (BTO).

Consolidated Diver and Grebe Statistics 2005-2008 – with other Interesting Species counts

Tables. Below are some Diver data tables, by kind permission of the BTO, with supplementary

data from our records where criteria different to that shown in Holt, C.A., et al 2009 are applicable. The symbols and mean threshold values are the same as those used in the WeBS report wherever possible. Where RAFOS records are significant but well below those levels published in The WeBS Reports, the RAFOS survey teams set their own qualifying levels for inclusion in the WeBS journal.

Key to Symbols:

()	(Number in parenthesis) Incomplete count; weather, visibility etc.
-	No count by WeBS or RAFOS
§	Site no longer meeting qualifying levels (Banks, A.N. <i>et al</i> 2006)
	May have been counted as part of larger sector
◀	‘Snowflake’; seen in year - Site fidelity [leucistic Individual; Great Northern Diver] – fondly named ‘Snowflake’

GB Mean threshold values: A wetland in Britain is considered nationally important if it regularly holds 1% or more of the estimated British numbers of one species or subspecies of waterbird. The 1% threshold levels are quoted for each of the diver species tables.

Qualifying Level: The minimum number of a species present at a site to allow for inclusion of the record in the BTO WeBS annual journal.

Red-throated Diver

Gavia stellata

GB Mean threshold value for any site = 50.

NOTE: Although this species never approached the GB threshold during our survey findings, the results are included to show that its preferences are not related to numbers of other divers present. It also may hint at a preference for locations further south in the UK at sheltered locations as over-wintering sites. Below are some results from selected sites from our survey areas:

Site	98-99	99-00	00-01	04-05	05-06	06-07	07-08	Mean
Loch Ewe NG 8486	-	1	2	1	0	3	2	1
Loch Gairloch NG 7776	3	0	2	0	4	0	2	1
Gruinard Bay NG 9293	0	1	0	2	0	0	0	0
Loch Inver NC 0722	-	-	-	3	0	3	3	2
Loch Eriboll NC 4460	-	-	(1)	4	(0)	3	2	2
Thurso Bay ND 1169	-	-	-	-	-	6	0	3
Kyle of Tongue NC 5757	-	-	-	4	0	0	0	1

Other sightings from locations not shown in the WeBS Reports table: (Min Count 3)

Poolwe: NG 8581	5 on 10 Feb. 2006	Loch Sheildaig: NG 8055	3 on 07 Feb. 2008
Boor:	3 on 05 Feb. 2007	Oldshoremore Bay:	3 on 04 Feb. 2008

NG 8481
Murkle Bay: 3 on 03 Feb. 2008
ND 1669
Bay of Culkein: 5 on 05 Feb. 2008
NC 0433

NC 2058
Kyle of Durness 4 on 05 Feb. 2008
NC 3864
Sandside Bay: 4 on 04 Feb. 2008
NC 9666

Sightings Total by Year:

Year	Total Count
2005	6
2006	15
2007	37
2008	39

Black-throated Diver

Gavia arctica

GB Mean threshold value for any site = 7

NB: 1997-2001 data shown for comparison purposes.

Site	97-98	98-99	99-00	00-01	04-05	05-06	06-07	07-08	Mean
Gruinard Bay NG 9293	-	5	14		1	9	6	8	6
Applecross Bay-Sand NG 7045	-	40	-	0	5	14	4	(13)	9
Loch Ewe NG 8486	8	7	36	11	0	3	40	(11)	14
Port Hend- erson NG 7573 to Red Point NG 7369	29	3	9	11	0	13	8	(1)	7
Loch Gairloch NG 7776	-	4	5	23	28	6	14	(14)	14
Little Loch Broom NH0393	-	4	1	17	3	(10)	13	(16)	11
Polbain NB9909/NC 0010	-	9	0	0	1	0	0	0	1
Applecross Bay- Milton NG 7045					4	14	2	13	8
Kyle of Durness NC 3864	-	-	-	4	0	0	0	2	1
Loch Eriboll NC 4460	-	-	-	6	0	0	0	5	2
Callakille NG 6954	-	-	-	-	-	6	0	6	3
Slaggan Bay NG 8394	-	-	-	-	0	0	21	-	5

Other sightings from locations not shown in the table: (Min count 6)

2005

Total all sites 2005 =22

Laide: NG 9092 7 on 10 Feb.

2006

Total all sites 2006 =110

Laide:	NG 9092	7 on 10 Feb.	Badluarach:	NG 9994	10 on 08 Feb.
Milton:	NG 7143	12 on 09 Feb.	Mellon Udrigle:	NG 8996	10 on 10 Feb.
Sand:	NG 6848	6 on 09 Feb.			

2007

Total all sites 2007 =96

Badluarach:	NG 9994	13 on 07 Feb.	Ard-dhubh:	NG 7040	10 on 08 Feb.
-------------	---------	---------------	------------	---------	---------------

2008

Total all sites 2008 = 61

Gruinard Bay:	NG 9293	8 on 05 Feb.	Little Loch Broom (Badcaul): NH 0291	13 on 06 Feb.
Loch Gairloch:	NG 7776	9 on 03 Feb.	Little Loch Broom (Dundonnell): NH 0988	3 on 06 Feb.
Gruinard Bay (Laide):	NG 9293	27 on 05 Feb.	Applecross-Milton: NG 7045	13 on 07 Feb.
Sand Bay:	NG 6848	6 on 07 Feb.	Callakillei NG 6954	6 on 07 Feb.

Citation

The 2010 – 2011 BTO WeBS report included the statement: “Improved coverage of the coastline of northwest Scotland in particular (such as that undertaken by RAFOS each winter) would inevitably derive a truer picture of this species' winter status in northern Britain”.

Movements

The movements of Black-throated Divers are still being researched. Some Scottish breeding lochs are deserted by August, but there is movement to salt water chiefly September–October; with return about April. Wintering area of the Scottish breeding birds is unknown (no relevant recoveries). Evidently some immigration into or through British coastal waters (scarce Ireland), since winter numbers believed to exceed size of breeding population; winter visitors in North Sea are probably Norwegian breeders as no recoveries have been documented from Norway despite large-scale ringing in the Baltic, (Cramp and Simmonds BWP 1997).

Great Northern Diver

Gavia immer

GB threshold =7. Normally 50 used within the WeBS Surveys as a minimum across the UK but for North and Northwest Scotland 7 is the agreed level.

Site	97-98	98-99	99-00	00-01	04-05	05-06	06-07	07-08	Mean
Gruinard Bay NG 9293	42	5	0	(7)	26	40	37	68	43
Loch Ewe NG 8486	22	4	8 ◀	6 ◀	19	33	53	58 ◀	41
Port Hend-erson NG 7573 to Red Point NG 7369	7	9	4	0	17	22	4	(13)	14
Callakille NG 6954	-				1	19	2	6	5
Loch Eriboll NC 4460	-	-	15	(1)	0	3	36	66	26

Little Loch Broom NH 0393	-	(5)	2	16	8	(7)	16	(10)	12
Loch Gairloch NG 7776	-	-	-	-	-	11	2	20	11

Key: ◀ See Note above



Great Northern Divers. Photo: ©RAFOS.

Other sightings from locations not shown in the table:
(Min Count 7 – unless stated)

2005

Total all sites 2005 = 21

Laide (Gruinard Bay): 4 on 10 Feb. (Highest in 2005)
NG 9092

2006

Total all sites 2006 = 234

Midtown (Loch Ewe): NG 8285	13 on 06 Feb.	Boor (Loch Ewe): NG 8481	8 on 06 Feb.
Laide (Gruinard Bay): NG 9092	12 on 07 Feb.	Laide (Gruinard Bay):	7 on 10 Feb.
First Coast (Gruinard Bay): NG 9291	7 on 07 Feb.	Portvasgo: NC 5864	7 on 07 Feb.
Milton: NG 7143	7 on 09 Feb.		

2007

Total all sites 2007 = 201

(Largest counts)

Loch Eriboll: NC 4460	36 on 04 Feb.	Loch Ewe: NG 8486	12 on 05 Feb.
Naast (Loch Ewe): NG 8283	15 on 05 Feb.	Laide (Loch Ewe): NG 9092	14 on 06 Feb.

2008

Total all sites 2008 = 315

(Selected counts outside of that shown above)

Poll Creadha: NG 7141	8 on 07 Feb.	Talmine: NC 5863	10 on 04 Feb.
Old Dornie Bay: NB 9811	7 on 02 Feb.		

Movements.

Great Northern Divers head south for the winter, having spent the summer months nesting in lakes in northern Canada, Greenland and Iceland. They come to enjoy the UK's milder winters though they are rarely seen in numbers away from Scotland's isles and west coast. (Jones R – CCW).

Record of Interest - An individual leucistic Great Northern Diver.

NB: [Records in year shown in above table as ◀].

The RAFOS team have located and observed an individual diver who we fondly named 'Snowflake' due to its appearance; she/he is leucistic (all white). The bird was first seen on Loch Ewe, off the jetty at RNE Mellon Charles NG 8491 in Feb 1999 by the team and reported upon by Sqn Ldr Nick Smith (Smith 1999). Furthermore 'Snowflake' was also seen at the same location the following year on 8 Feb 2001, very early in the morning, possibly identifying its over night roosting site, or site fidelity. Amazingly, the bird was again seen at the same location in Feb 2008, close to dusk by Gp Capt Jerry Knights, unfortunately due to the prevailing weather none of the other team members managed to 'get on' the bird as the weather was appalling with high gales and choppy conditions on the open water in the bay. Jerry was convinced of what he had seen. Both the BTO and our team feel this is a very interesting record. Birds in the field are usually indistinguishable unless they show, for instance, as this bird does, leucistic plumage. We therefore consider the following three assumptions can be made:

We have the same individual.

We can add knowledge to a bird's particular individual's age and longevity (he/she is at or over 8 years old as of 2008).

Site Preference: Birds roost in favoured sites-sea lochs in sheltered bays year after year. That this particular bird 'Snowflake' is showing site fidelity (i.e. same loch & same bay at dusk or even as a roost site) over some 8 years.

Winter Duck (2005-2008) Abridged Systematic List

From a collated original list of all sightings by Martin K Wightman & John N Wells – RAFOS Expedition Recorders.

Other Interesting Species & Counts:

Systematic Lists for all years 2004-2008 that are not fully covered in this paper are held by M K Wightman/J N Wells. There are too many to list for a journal article and reference to such can be obtained from the RAFOS Library and/or M K Wightman. Therefore an abridged Summary of Records is provided of interesting records.

Little Grebe (Minimum count of 5)

Tachybaptus ruficollis

2005

Old Dornie: NB 9811 5 on 06 Feb. Loch Duartmore: NC 1937 7 on 07 Feb.

2006

Loch Borrallie: NC 3867 5 on 05 Feb. Lochcarron: NG 8939 5 on 09 Feb.
Loch Duartmore: 5 on 07 Feb. Loch Kishorn: NG 8239 8 on 09 Fe

2007

Loch Duartmore: 6 on 07 Feb. Kishorn Estuary: NG 8341 5 on 08 Feb.
Loch Shin: NC 5608 5 on 03 Feb.

2008

Upper Loch Torridon: 6 on 07 Feb. Loch Lanlish: NC 3868 6 on 05 Feb.
NG 8656
Old Dornie Bay: NB 9811 5 on 03 Feb.

Red-necked Grebe (All records)

Podiceps grisegena

Loch Kerry: NG 8174 1 on 10 Feb 2006.

Slavonian Grebe (All records)

Podiceps auritus

2005. Note nil records in 2005.

2006

Midtown: NG 8285 5 on 06 Feb. Boor: NG 8481 6 on 06 Feb.
Little Gruinard: NG 9490 1 on 07 Feb. Aultbea: NG 8789 1 on 07 Feb.
Mellon Charles: NG 8491 1 on 07 Feb. Ob Mheallaidh: NG 8354 1 on 09 Feb.

Balgy: NG 8454 1 on 09 Feb. Annat: NG 8954 3 on 09 Feb.
Torridon: NG 8856 5 on 09 Feb. Inveralligan: NG 8456 7 on 09 Feb.
Poolewe: NG 8581 5 on 10 Feb. Loch Ewe: NG 8486 1 on 10 Feb.

2007

Loch Eriboll:	NC 4460	4 on 04 Feb.	Ard Skinid:	NC 5961	4 on 04 Feb.
Rubha Thùrnaig:	NG 8684	1 on 05 Feb.	Loch Thùrnaig:	NG 8684	1 on 05 Feb.
Naast:	NG 8283	2 on 05 Feb.	Boor:	NG 8481	8 on 05 Feb.
Aultbea:	NG 8789	1 on 05 Feb.	Mellon Charles:	NG 8491	5 on 05 Feb.
Badluarach:	NG 9994	4 on 07 Feb.	Durnamuck:	NH 0192	1 on 07 Feb.
Dundonnell:	NH 0988	2 on 07 Feb.	Poolewe:	NG 8581	9 on 08 Feb.
Poolewe:	NG 8581	4 on 09 Feb.	Loch Ewe:	Overall total	18 on 05 Feb.

2008

Loch Ewe: (An Sguiteach-Naast):		1 on 04 Feb.	Loch Thurnaig:		1 on 04 Feb.
Loch Ewe (Boor):		4 on 04 Feb.	Loch Eriboll:		21 on 05 Feb ¹ .
Loch Ewe (Aultbea-Gob-A Gheodha):		1 on 04 Feb.	Kishorn Bay:	NG 8341	1 on 07 Feb.

Black-necked Grebe (All records)

Podiceps nigricollis

Little Gruinard: NG 9490 2 on 07 Feb 2006 (*GSB; NC; ID; JNW*).

Comparison Table – all counts Diver and Grebe species:

Species	2005*	2006	2007	2008
Red-throated Diver	6*	15	37	39
Black-throated Diver	22*	110	96	61
Great Northern Diver	21*	234	201	315
Little Grebe	22*	47	55	54
Slavonian Grebe	0*	37	42	38
Black-necked Grebe	0*	2	0	0
Red-necked Grebe	0*	1	0	0

² Only WeBS CCSV Form data – nil casual records available.

* No Northern – 'Team 3' in 2005, hence lower totals.

Goldeneye (Minimum count 50 birds).

Bucephala clangula

A sheltered corner of Loch Gairloch provided a superb view of a large raft of Goldeneye whilst we were on survey. I located the site, by chance whilst on survey from the jetty at Charlestown, NG 8074. Large gulls were seen to be heading inland up to the far corner of the Loch. We checked out the site that was shown as a fish farm on the OS maps. After driving back we sought permission to survey in what is a private hatchery and the outfall of which gives gulls and other species a chance of some nutrient rich water, the water and residual matter from the hatchery tanks.

¹ Highest recorded site total over RAFOS Survey 1999-2008

Here Goldeneye, Mallard, Tufted Duck and many Gull species come to feed and rest up, away from the elements. The traditional large flock at the fish-farm outfall at Loch Kerry NG 8174 was counted as part of Loch Gairloch as follows:

Loch Kerry: 140 on 06 Feb 2005.
 Loch Kerry: 142 on 05 Feb 2006.
 182 on 09 Feb 2006.
 177 on 10 Feb 2006.
 Loch Kerry: 154 on 04 Feb 2007.
 183 on 08 Feb 2007.
 Loch Kerry: 218 on 03 Feb 2008.

Smew

Mergus albellus

A ♂ (male) at Loch Kerry (Loch Gairloch): Feb 2007.

NB: Interestingly a single male was also reported at the same location in 2001:

Loch Kerry (Gairloch): A ♂ on 08 Feb and 09 Feb 2001. (Godfrey M., 1999).

Kumlien's Gull

Larus glaucooides kumlieni

Lochcarron: NG 8939

A first-winter on 09 Feb 2006 (**SMC**).

White-tailed Eagle

Haliaeetus albicilla

White-tailed Eagles have been released in NW Scotland by the RSPB over a number of years.

Date 07 Feb 2008. Team 1 located an individual at Upper Loch Torridon, Wester Ross.
 Survey Sector: Ob Mheallaidh. Grid Ref: NG 8354.
 Considered an immature bird by Team 1.

Wing Tag details:

Left Wing: Red Tag – White (number) 4.

Right Wing: Nil tag.

Response rec'd via Miranda Shephard – BTO Recoveries Officer:

From: Justin Grant; Male bird. Ringed and tagged at Confidential Site. 09 Jun 2005. Ring Number: ZZ1389.

Ringling/Nest sites are not provided as these are protected sites and thus are not given by the BTO Ringing Unit. Other wing-tagged White Tailed Eagles have been encountered but at a distance where the wing-tag was un-readable.

Recovery Data – Info: RSPB Anna Crawford - Database: Individual; Red 4.

Date	Location	County/Area
11 Mar 06	Shieldaig Island	Wester Ross
18 Mar 06	Loch an Draing	Wester Ross
01 Apr 06	Nr; Portree	Isle of Skye
13 Nov 06	Nr Ardgay	Kyle of Sutherland.
13 Apr 07	Raasay	Nr Isle of Skye
04 Sep 07	Vriskaig Point, Portree	Isle of Skye
05 Sep 07	Udairn Nr; Portree	Isle of Skye
17 Jan 08	Casseley River, Nr Rosehall	Sutherland
07 Feb 08	RAFOS-see above	

Common Bullfinch

Pyrrhula pyrrhula

Strathan: NC 0821

08 Feb 2005

A group of five birds seen on 08 Feb were considered to be of the northern race *Pyrrhula pyrrhula pyrrhula*. (**SH/JB/MW**).

Additional record not included: a photographic record relating to a Glaucous Gull has not been included within the journal due to the Editor's uncertainty as to the correct identification. The photograph remains available for further consideration.

Accommodation.

Accommodation has taken the form of overnight accommodation on the drive north by the teams from England, either at Pine Cottage, Newtonmore or more recently at The Drill Hall, Kingussie (from 2008). From thereon, the team used military accommodation at Royal Navy Establishment (RNE) Aultbea NG 8789 - Mellon Charles NG 8491 (years; 2005, 2006). This is now no longer accessible on Health & Safety grounds. Therefore, since 2007, we have used the Joint Service Mountain Training Centre (JSMTC) hut at Dundonnell NH 0988, and the military Defence Estates Scotland Range Hut at Farraid Head NC 3871 (2005-08) as principle bases to mount survey work. Teams also have diverse accommodation when the teams split 3-ways to gain maximum coverage of the survey area. This is usually self-catering accommodation for teams of up to 3 or 4 members or privately owned rented accommodation, e.g. Knockan Crag Guest House, Elphin NC 2111 (2005-2008) and The Backpackers Lodge, Thurso ND 1168 (2008).

Travel / Hire vehicles.

The use of RAF Unit Public Services Institute, (PSI), hire vans has been invaluable and the team have used RAF Wyton/Brampton vans in every year since 2005, also RAF Cottesmore (2005 & 2006), RAF Cosford (2007) and RAF Lyneham (2008). The two vehicles are used in transporting teams from England and Southern Scotland and in conducting the surveys. In addition the Scottish element of the team use Tom Dewick's private 4WD vehicle for the northern sites/sectors of the survey area.

Conclusions.

RAFOS, working on behalf of the BTO, continue to monitor the best areas for diver species during winter in Britain in support of the UK wide study - WeBS. The BTO have recognised the coastal waters of Scotland are traditionally poorly covered and in particular Dr Andy Musgrove, and Peter Cranswick (earlier), recognised that RAFOS had a part to play. Special voluntary efforts by RAFOS over time with structured planning and implementation of single visit core counts for WeBS has provided a significant number of diver and other wildfowl counts. By returning each year these fieldwork studies have provided a sound data set for the BTO. The Wetland Bird Survey conducted in the Northern Highlands of Scotland has gathered valuable records at sites of national importance. In addition to the WeBS data the team collected Roving Records of species observed in each 10km square visited in support of 'The Bird Atlas 2007 - 2011'. The WeBS data, plus all passerine and waterbird records from the 4 years study have been submitted to the Highland Bird Club by M K Wightman. This is now done via Birdtrack.

A full account of Winter Duck IV (2005) was published in the Armed Forces (RAFOS/AOS) Bird Watching and Ornithological Journal, Issue 6 (Wells, J.N. and Wightman, M.K. 2006).

Long Term Aims.

The Society wishes to undertake the survey as long as feasibly possible dependant on personnel availability and keenness to undertake arduous ornithological surveys in a harsh winter environment. Key to this is support from the RAFOS Committee and our two sponsors. The BTO have met RAFOS participants and expressed their gratitude at this work on behalf of The WeBS Unit at the BTO HQ, The Nunnery, Thetford.

Acknowledgements.

We would like to take this opportunity in thanking the following Defence organisations & establishments for their assistance to the RAFOS 'Winter Duck' field study.

HMS Faslane: RNE Aultbea, Mellon Charles.

Defence Estates –Tain; Faraid Head Range hut and accommodation.

Defence Estates/Landmarc (SC) Services, Stirling and Cameron Barracks, Inverness: use of JSMTTC Dundonnell and Kingussie.

57(R) Sqn and VT Group, RAF Wyton, assistance with Ordnance Survey Maps.

Flt Sgt G Essex and the Reliability Centred Maintenance, (RCM), team; Swales Pavilion, re; hire of the RAF Brampton/Wyton, PSI/SIF Van.

In addition, thanks are extended to:

The British Trust for Ornithology, The Nunnery, Thetford, Norfolk who provided valuable support, coordination, encouragement and a data repository.

The Royal Society for the Protection of Birds, The Lodge, Sandy, Bedfordshire

Joint Nature Conservation Committee in association with the Wildfowl and Wetlands Trust.

Most importantly we are grateful and we thank our two sponsors, in providing financial support to the RAFOS team:

Aircraft Services International Group (ASIG) - Mr Mark Davies.

Air BP International - Mr Graeme Mackie.

Without these two companies' continued support, we would not have been able to achieve such fantastic survey coverage, and providing logistical support in spite of ever increasing fuel costs. These two organisations have been instrumental in helping us to achieve WeBS coverage in excess of 400 miles of the NW and N coastline of Scotland.

ASIG



Air BP



Air BP

References:

Austin, G.E., Collier, M.P., Calbrade, N.A., Hall, C. & Musgrove, A.J. 2008. *Waterbirds in the UK 2006/07; The Wetland Bird survey*. BTO/WWT/RSPB/JNCC, Thetford, UK.

Banks, A.N., Collier, M.P., Austin G.E., Hearn, R.D. & Musgrove, A.J. 2006 *Waterbirds in the UK 2004/05 The Wetland Bird Survey*. BTO/WWT/RSPB/JNCC, Thetford, UK.

Bibby, C.J., Burgess, N.D., Hill, D.A. and Mustoe, S. 2000 *Bird Census Techniques, Second Edition*, Academic Press, London, UK.

Cramp, S. - The Birds of The Western Palearctic, Oxford University Press, Great Clarendon Street, Oxford. UK

Cramp, S. and K.E.L. Simmons. 1977 (Eds). *Birds of The Western Palearctic* (BWP), Vol 1. Oxford University Press. Oxford UK.

Eaton, M.A. (et al) Birds of Conservation Concern 3. The population status of birds in the United Kingdom, Channel Islands and Isle of Man – *British Birds June 2009*.

Godfrey, M. (Sqn Ldr) – West of Scotland Survey 1999, RAFOS Journal Number 28, June 1999.

Holt, C.A., Austin, G.E., Calbrade, N.A., Mellan, H., Thewlis, R.M., Hall, C., Stroud, D.A., Wotton, S.R.d and Musgrove, A.J. 2009 Waterbirds in the UK 2007/08: *The Wetland Bird Survey*. BTO/WWT/RSPB/JNCC, Thetford.

Jones, R. Gwynedd Council Senior Biodiversity Officer, Countryside Council for Wales.
www.ccw.gov.uk

Smith, N. (Sqn Ldr). Sighting of Leucistic Great-northern Diver (*Gavia Immer*). RAFOS Journal (in litt.) Number 28.

Soloviev & Tomkovich. [For use of their web site of arctic birds and weather data].

Wells, J.N. and Wightman, M.K. Winter Duck IV. The RAFOS coordinated land-based Wetlands Bird Survey (WeBS) of Northwest Scotland 4-12 February 2005. *The Osprey - Armed Forces Birdwatching and Ornithological Journal* 2006.