

Scottish Raptor

Bringing you the latest news from the Scottish Raptor Monitoring Scheme

Raptor monitoring in the face of Coronavirus

It is vital that volunteers and other contributors who submit data to the SRMS follow the latest government advice in order to prevent the spread and transmission of infection. The government advice published on 23.03.2020 is clear that we should remain at home as much as possible.

The SRMS advice is to follow current government advice and remain at home. The restrictions announced on 23 March will last for three weeks, and will be reviewed on 13 April. We will continue to monitor the government advice, and will update our statement accordingly. We will continue to provide updates on our website. **The current advice is that you must not carry out fieldwork if by doing so you would be in breach of the government advice. Fieldwork is not considered essential under current advice.**

The health of our contributors is very important to us, as are our relationships with the landowners and local communities. It is likely that fieldwork will be much reduced this year and the uncertainty around what may be possible has already led some organisations to cancel all breeding season surveys for 2020. The situation may end up similar to that during Foot and Mouth in 2001, but monitoring is very much a long-term project, which will not suffer unduly from the occasional short-term crisis.

Please check for updates on the SRMS website as we may review our statement later on in the breeding season: <http://raptormonitoring.org/>

Hello! I've now returned to work after a year of taking care of my new brood of one. My wee girl Ayla was born last March and has been keeping me very busy. While she is a little way off monitoring raptors, she definitely likes the outdoors already and has taken to pointing out pheasants parading around our garden. Just as I am arriving back at work, the breeding season is already underway and I'm sure many of our readers have been busy undertaking their early visits to their study areas.



Returning to work has been a far from normal experience, with the current Coronavirus pandemic limiting contact with colleagues, partners, volunteers and contributors across the Scheme. The next few months hold a lot of uncertainty for all of us but nevertheless the SRMS will be working as hard as we can to keep our work on track. I want to extend a very big thank you to Nina Schönberg, who has been taking care of the SRMS for me while I have been away. I am pleased to see that several priority pieces of Scheme work have progressed significantly in my absence. Nina will continue to work as SRMC alongside me until the end of May as the work is handed back over.

This issue contains updates on the national Merlin SCARABBS survey, which had been due to run this year. There is also an article on the winner of the Donald & Jeff Watson Raptor Award in this the 40th year of the Scottish Raptor Study Group and some important updates on Scheme developments.

If you would be keen to offer an article for a future issue or have suggestions for articles that you would like to see, I would love to hear from you.

Amy (SRMC)

Happy 40th Birthday SRSG!

Many happy returns to the Scottish Raptor Study Group, which this year celebrates 40 years of raptor monitoring in Scotland. SRSG was formed in 1980 and since then has been monitoring and recording the fortunes of raptor species across Scotland. In a future issue we hope to bring you an article celebrating the history of SRSG.

SRSG has been a key partner of the SRMS since its inception 18 years ago. If you are one of the many SRSG members out there monitoring our breeding raptors and sharing your recording information with the Scheme – THANK YOU and here's to the next 40 years!



Celebratory cake devoured by SRSG members and their guests at the recent SRSG conference (Nina Schönberg).

SRMS Annual reporting



Our report on the 2019 breeding season is currently being drafted and we are on track to get it published by the end of the summer.

We are conscious that many of our species data tables are not currently as complete as they could otherwise be. This is because some contributors have yet to return a SRMS Registration Form, which would grant permission for us to use the data that have been passed to us for a range of uses including annual reporting. **Unless you have given us permission to use your data, these will unfortunately not be included in the forthcoming report. If you usually contribute data to the Scheme but have not yet completed a SRMS Registration Form, please do so at your earliest opportunity and return it to the SRMC.**

Registration Forms can be downloaded from the SRMS website at

<http://raptormonitoring.org/getting-involved/registering-for-srms>.

Merlin 2020 survey & SCARABBS

Under the SCARABBS survey programme run by RSPB and the statutory country conservation agencies, Merlin was due to have a national survey in 2020. Sadly it has not been possible to find suitable funding for this and the survey will not be running in 2020.

Funding such national surveys is very expensive and with reducing budgets for both the agencies and RSPB, there are some discussions ongoing about revising the SCARABBS programme and also looking at other ways of undertaking such surveys. This covers not just the pros and cons of survey design and logistics but also other potential funding routes and trying to broaden the surveyor base.



Merlin chick on Orkney (Jim Williams)

This is where the SRMS work on trends and coverage becomes very useful in a Scottish context. Merlin was one of the first species to be looked at with a view towards supporting a national survey and what could the SRMS data 'do' in the absence of one.

This work has highlighted the overall Merlin coverage in Scotland, variations in regional coverage and the fact that trends can only be produced for certain geographical areas. Unfortunately, whilst a useful indicator, these trends may not be fully representative of Scotland as whole and we really need a bigger sample across Scotland to be confident on what is happening with Merlin given evidence of negative trends in some areas of Scotland.

This assessment allows a more strategic approach to any potential future survey as we can identify areas with no, low or high coverage; areas with concentrations of Merlins; and what proportion approximately of the Merlin population is annually monitored (assessed against the 2008 national survey population estimate). This can inform the level of sampling of the population required, where we might need to target the use of other surveyors (e.g. areas with no or limited presence of SRSG members monitoring merlins); and help estimate likely survey costs.

The approach used for Merlin is being repeated for all the SRMS species so we will have a similar basis for them to feed into discussions on the future of SCARABBS and on inclusion/prioritisation of raptor species within any revised programme.

Andrew Stevenson (SNH) & Mark Eaton (RSPB)

SRMS online – ready for launch!

We are excited to announce that the SRMS Online recording system has now been launched and is available for all contributors to use should they wish to do so.

If you are keen to start using the system this breeding season then:

1. If you have not already done so, let the SRMC know what your MyBTO username is, so that we can set your account up for you (this means the creation of an account and the preloading of your monitoring sites, unless you have otherwise indicated). If you do not have one yet, you can register [here](#).
2. Wait until you receive a go-ahead from the SRMC, that the system and your account are ready for use. **So, if you do already have an account, having attended a recent training event, please do not add data or edit your sites before you have been given the go-ahead to ensure none of your work gets overridden.**

When the system goes live, you will be given access to two sets of guidance materials; a Quick Start Guide, and a more detailed User's Manual, which should help you to get started. We will also have a FAQ section, which we will start to fill in. Of course, the SRMC will also be on hand to assist and answer any questions.

Coronavirus-permitting, we intend to arrange a series of training events for later in the year, so if you do not feel ready to start using the system until after you have attended an event then that is of course ok. The SRMC will be exploring the demand for training with those that have registered to use the system shortly.

Raptor Patch training days

Depending on the developing Coronavirus situation, the SRMS is hoping to run two training days later in the year for existing and new Raptor Patch volunteers. If you are interested in attending a training event, please register your interest with the SRMC. The demand for training will help guide where we choose to run these events, so let us know where you are based.

Many thanks to all the volunteers who have been carrying out monitoring for this new initiative, which will, through time, improve the quality and quantity of trend information available for Scotland's most widespread raptor species.

To find out more about *Raptor Patch* and how you can get involved please visit <http://raptormonitoring.org/getting-involved/raptor-patch>

Data sharing

By the end of this financial year SRMS partners will be able to access the SRMS legacy dataset via a secure online interface to use in line with the SRMS Data Sharing & Use Policy. This legacy dataset covers the period from 2003 up to 2019 and comprises data from those individuals who have given permission for their data to be used in line with the Policy. If you have not yet familiarised yourself with the SRMS Data Sharing & Use Policy, you can view it at <http://raptormonitoring.org/srms-data/data-sharing-use-policy>.

For the first time in the history of the SRMS raptor data will be at the fingertips of conservational professionals in the SRMS partner organisations for a wide range of conservation purposes to benefit raptors. This is a monumental leap forward for the SRMS as the existing data request process (which will remain in place for non-SRMS partners and for uses that fall out of scope of the Policy) can be quite onerous.

We are pleased to report that the majority of Scheme contributors have let us know that we are able to use and share their data through completing a SRMS Registration Form. **If you have not yet completed a SRMS Registration Form, please do so at your earliest opportunity and return it to the SRMC** so that your data can also be mobilised to support the work of the SRMS and its partners.

Registration Forms can be downloaded from the SRMS website at <http://raptormonitoring.org/getting-involved/registering-for-srms>

Musical chairs in SRMG

The Scottish Raptor Monitoring Group (SRMG) comprises representatives from all nine SRMS partner organisations and meets several times a year to oversee the work of the SRMS. Recently two long-serving representatives have stepped down from their roles on the Group and SRMG wish to recognise the valuable contribution that both have made over the lifetime of the Scheme.

Mark Holling has sat on the Group since its inception in June 2002, initially representing SOC when he was SOC Vice President but for the last 13 years representing RBBP. After almost 14 years working as Secretary for RBBP, Mark is retiring from the role in April, though we understand he will continue working behind the scenes in a voluntary capacity as RBBP archivist, and will continue to serve as a member of the Panel. Mark's contribution to the SRMS was acknowledged by a presentation of a gift at the most recent SRMG meeting on 4th March.

RBBP will be represented on the Group in the future by Mark Eaton, who will be vacating his position as RBBP Chair in order for him to take up the position of RBBP Secretary this month. Mark Eaton has represented RSPB around the SRMG table since January 2019 and will continue to represent both organisations in the short-term until a new RSPB representative is identified. Welcome to Mark with his extra hat on!



Presentation to Gordon Riddle at the recent SRMG conference (Nina Schönberg).

Gordon Riddle (Chair of the South Strathclyde RSG) has represented SOC on the Group since Mark Holling swapped chairs nearly 13 years ago. Gordon's contribution to the SRMS was marked with a gift from SRMG and presented by Andrew Stevenson (Chair of the SRMG) during lunch at the recent SRMG conference.

SOC will be represented on the Group in the future by Mike Thornton. Mike has been a keen supporter of the SRMS for many years and is very keen to encourage new people to get involved in raptor monitoring through sharing his own experiences. To that end he has been very supportive of our *Raptor Patch* initiative and even helped lead an outdoor session on our first *Raptor Patch* training day. Welcome to the team Mike!

Once the music has stopped and people have settled back into their seats we should be able to let you know in a future issue who will be sitting round the table for RSPB at future SRMG meetings and we will update the website accordingly <http://raptormonitoring.org/about-the-srms/srmg>.

Mark Holling reflects on his time on the SRMG

The Scottish Raptor Monitoring Scheme was set up in 2002, and from the beginning I have been a member of the Scottish Raptor Monitoring Group, which administers the Scheme. An agreement between all partners was signed on 24 June 2002 in Pitlochry, and it was with great pride that I was there representing the SOC (I was Vice President of the SOC at the time). In those early days I had full-time care of my daughter and she had to accompany me to meetings; I tried to arrange it so she slept quietly in the corner but at times we just had to excuse ourselves! Latterly I was able to make other arrangements and so give my full attention to the important items on the agenda (they are all important of course!). I am grateful to Des Thompson, Chair of SRMG at the time, who permitted this unusual arrangement so that SOC could be represented. I tried to speak for birdwatchers in Scotland and help guide the work programme to better our understanding and ultimately the conservation of raptors in Scotland. At that time, I had two main roles in the working of the group. The first was bringing together the annual report, written by Brian Etheridge (Raptor Monitoring Officer at the time) but I led on the editing and organised page-setting and printing; the new SRMS report effectively replaced the 'Raptor Roundup' that the SOC had produced and circulated previously. The other was to use my scientific background and knowledge of birds and birding in Scotland in attending the additional science steering group meetings which, among other things, focussed on getting the species conservation frameworks up and running.



Presentation to Mark Holling at the recent SRMG meeting (Nina Schönberg).

In May 2006 I was appointed to the role of Rare Breeding Birds Panel Secretary, to replace Malcolm Ogilvie who had represented RBBP on the SRMG from the outset. I therefore continued to attend the meetings but now with a different hat on – that of the RBBP, rather than SOC. RBBP collates population statistics and site information for the rarer raptors across the whole of the UK, and maintains a strong link with county recorders and other data providers. The partnership between SRMS and RBBP is a strong and important one, as both organisations provide the facts and robust information about birds of prey in Scotland.

Throughout this long period, the Scheme has evolved and changed but maintained its steadfast commitment to ensuring that the best science is employed to protect and promote the value of Scottish raptors. The Scheme has always been a partnership and it has been a pleasure to see the many and varied groups work together towards a common goal. We have also worked closely with others to produce landmark publications such as the Conservation Frameworks for Golden Eagle and Hen Harrier. Through dogged hard work and persuasion, funding has been maintained and even increased so that we now have a full-time Scottish Raptor Monitoring Coordinator; previously we only had a 3-day a week Raptor Monitoring Officer post.

Over the course of the past 18 years as a member of SRMG I have attended almost all of the meetings of the SRMG and I hope I have helped make a difference through my contributions and perseverance over many complex issues. Only one other individual has lasted that long, the perennial Patrick Stirling-Aird (well done Patrick!). I have made new friendships and learnt so much through my involvement and I will miss the regular meet-ups (honest). But the time has come for me to retire and step back from working life, so I hand the baton of RBBP Secretary on to Mark Eaton and look for other things to occupy my time (I'm not short of ideas, by the way!).

Mark Holling (Retiring RBBP Secretary)



The Donald and Jeff Watson Raptor Award



Jim Williams with Buzzard chicks (Stuart Williams).

Scottish Raptor Study Group Conference devised the Donald & Jeff Watson award in 2007 in association with the Watson family as a memorial to the contributions of both father and son to the study and conservation of raptors in Scotland, and specifically to recognise 'A significant long-term amateur contribution to the study of raptors in Scotland.' In 2020 the award was presented to Jim Williams. Below is the citation from Orkney Raptor Study Group, delivered at the most recent Scottish Raptor Study Group Conference where the award was presented.

Jim Williams was born in Hampshire in 1942, his formative birding years were mainly spent in the New Forest, around the Solent and at Portland Bill. It was while he was working for the Ordnance Survey that he applied for a posting in Scotland – moving to Orkney in 1964 where he planned to stay for just a couple of years; over 50 years later he's still here! Upon his arrival in Orkney, the first bird he saw from the airport bus into Kirkwall was a cock Hen Harrier, a bird he holds immense affection for.

Within a couple of weeks of arriving in Orkney, Jim made contact with Eddie Balfour, who invited him to visit some Hen Harrier nests next day! Jim formed a lasting friendship with Eddie, helping him with some of the fieldwork on his ground-breaking study of the species.

After Eddie's untimely death in 1974, Jim continued to monitor Harriers along with the other raptors in the county. When Nick Picozzi arrived to continue Eddie's work, Jim once again lent a hand with field work, and he also assisted with Arjun Amar's more recent work on the species.

Jim has an encyclopaedic memory for the county's raptor sites, and he has been to nearly all of them. He continues to annually monitor over 50 Harrier sites, 20 Merlin sites, 10 Short-eared Owl sites, along with the odd Peregrine and Kestrel, while also lending a hand to help others in ORSG cover their own sites. Jim has never been one for writing up his findings, much preferring to do the 'fun part' as he puts it, gathering the data and letting others use it. However, Jim has been a co-author of several raptor papers.

The Island of Hoy has always held special affection for Jim and it was through his long field hours and determined work that the true population of Harriers on that Island was



Three generations of the Williams family – Nicola, Stuart & Jim – raptor monitoring on Orkney (Nicola Williams).

discovered. It was thought for many years that there were maybe four or five Harrier sites at most. Jim proved the true figure was indeed much higher, with nearly 20 sites, and in a good year as many as 40 sites can be used!

Jim was instrumental in the setting up of ORSG in 2004 and has hosted every meeting at his home since the formation of the group, providing copious cups of tea, coffee, sandwiches and home bakes for each of the group meetings. Never one for putting his head above the parapet, always preferring to stay in the background, Jim was gently persuaded to take on the role of Chairman in 2007, a role he continued in until 2018. He was species coordinator for all the county's breeding raptors for six years, this at a time when records were still mainly coming in to him on paper, with Jim collating and entering them onto computer. Jim willingly passes on his experience and knowledge, gives encouragement to others and is always ready to help others monitor their own areas to keep up a constant effort of monitoring in the county. He is ever diplomatic with his advice to others where he can see improvement is needed. His enthusiasm for raptor monitoring knows no bounds and his stamina on the hill is legendary, the speed at which he covers the ground has left many half-his-age trailing in his wake; thankfully he is now starting to slow down a bit on the ground!

It is for his contribution to raptor monitoring in Orkney for over 50 years that ORSG are nominating Jim Williams for the Donald and Jeff Watson Raptor Award.

Oot and about

In early February Nina led several training events to train SRMS contributors on a Beta version of the SRMS Online Recording system. Events were attended by about 20 people who provided some valuable feedback on the system. This feedback has resulted in some improvements being implemented ahead of the launch.

Nina was invited to talk at the recent Scottish Raptor Study Group conference in February and both Nina and Amy have been trying to get around as many SRSG branch meetings as possible this Spring.

Unfortunately the current Coronavirus pandemic will almost certainly hamper oot and about activities for the SRMC's for the foreseeable future. Both Amy & Nina along with colleagues at BTO Scotland have been encouraged to work from home and to cancel all face-to-face external meetings and events scheduled for the next three months. Depending on how long the situation lasts, Amy is likely to explore opportunities for delivering training remotely (for example in the use of SRMS Online) for those that might be interested.

If you need to contact the Scheme over the next three months, in the first instance please use the SRMC email address and we will get back to you as soon as possible.

The SRMS website as a valuable resource

The SRMS website (<http://raptormonitoring.org/>) has been up and running for almost five years now, so we thought it was a good opportunity to remind our readers of its existence and take a quick look at how popular it has been over the time it has been operational.

A note on how website use can be monitored

Usage of the SRMS website can be monitored using software called Google Analytics. Google Analytics allows you to investigate various measures of usage over user-specified time periods. The usage figures presented in this article are believed to represent (as far as it is possible to determine) genuine usage of the website, i.e. where possible ghost referrals (spam-like requests to the website) and visits of less than 10 seconds have been excluded.

How many people are using the website and how long are they visiting for?

Over the period from going live up to the end of February 2020, there were a total of 7,817 sessions on the website, with 4,998 visitors having at least one session. An average of 4.4 pages of the website were viewed per session with the average session length lasting around six minutes.

SRMS website use between 22nd May 2015 and 29th February 2020.

Measure	2015 (from 22 nd May)	2016	2017	2018	2019	2020 (to 29 th Feb)	TOTAL
Users ^a	356	941	929	1,177	1,609	266	4,998
New users ^b	339	871	844	1,077	1,493	228	4,852
Sessions ^c	533	1,486	1,409	1,700	2,326	363	7,817
Pages per session ^d	5.8	4.76	4.29	4.48	3.93	4.82	4.44
Average session duration ^e	06:06	06:09	06:05	06:07	05:50	06:23	06:02

^a Users that have had at least one session within the selected date range. Includes both new and returning users.

^b The number of first-time users during the selected date range.

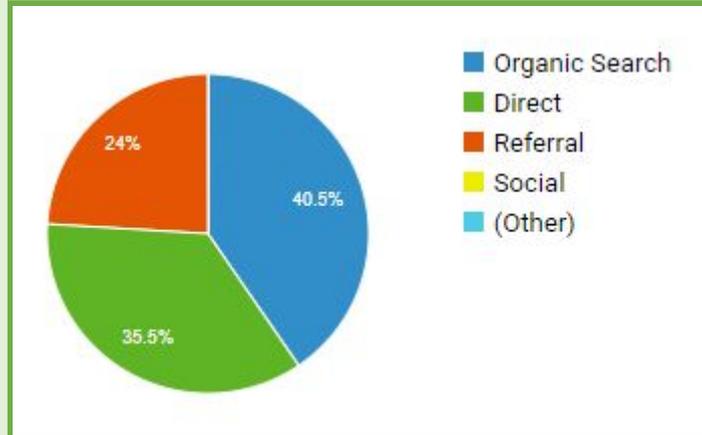
^c Total number of Sessions within the date range. A session is the period time a user is actively engaged with your website.

^d Pages/Session (Average Page Depth) is the average number of pages viewed during a session. Repeated views of a single page are counted.

^e The average length of a Session (m:s).

How are people getting to the website?

Users reach the website by three distinct routes. 40.5% of traffic is by an organic search (i.e. searching Google using relevant keywords), 35.5% of users come directly (i.e. through typing in a URL for one of the SRMS website pages or following a link in an email) and 24% of users arrive via a referral from another website (i.e. clicking a hyperlink in a website).



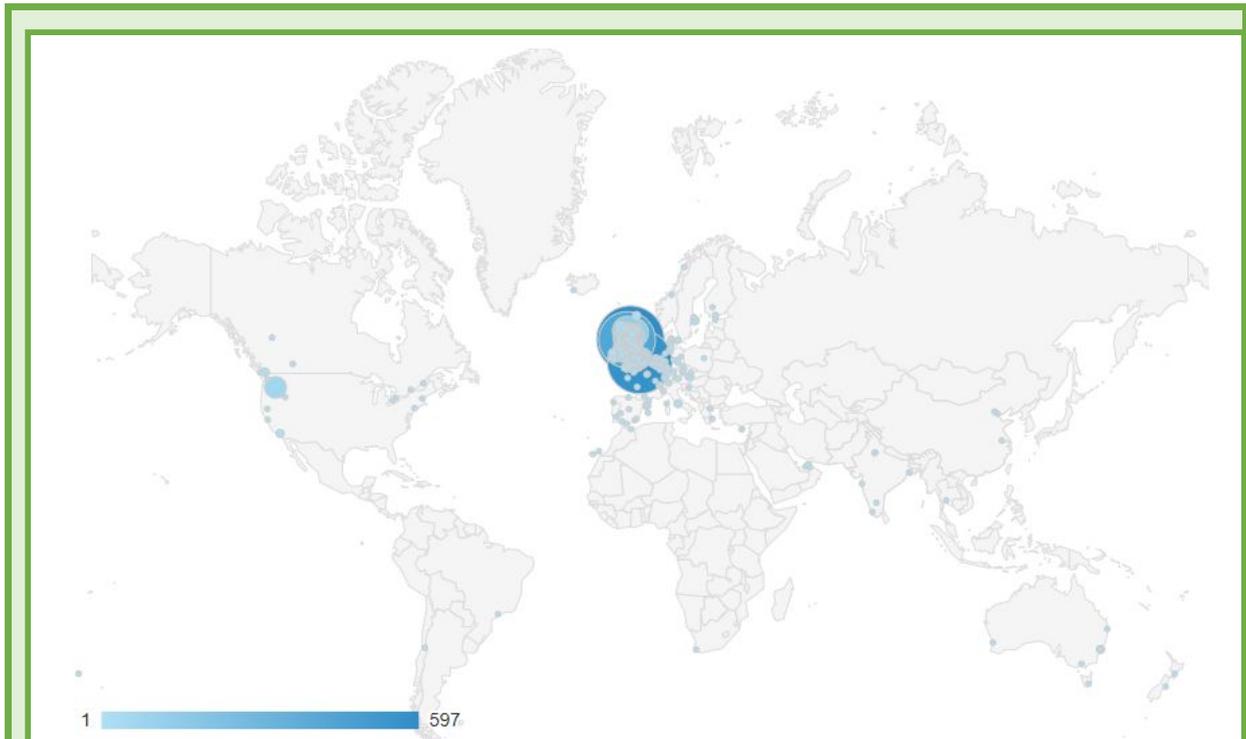
Users have reached the SRMS website via several SRMS partner websites, including SRSG, SOC and BTO, with the majority (1,155) of referrals via the SRSG website.

Source of the top five referrals to the SRMS website (22nd May 2015 and 29th February 2020)

Source	Users	New Users	Sessions	Pages/Session	Average Session Duration (m:s)
scottishraptorstudygroup.org	1,155	1,049	1,696	5.08	06:03
the-soc.org.uk	78	77	122	5.07	06:55
bto.org	16	10	44	6.45	14:54
srms.piwigo.com	16	4	63	5.25	11:22
wildlifeinformation.co.uk	10	9	10	4.9	04:01

Where are SRMS website users based?

The SRMS website is available to a global audience so it is interesting to see where in the world the website has been accessed from, and for how long. Perhaps unsurprisingly the majority of users are based in the United Kingdom. Users from some countries have spent a long time on the website, for example, two users in Slovakia spent an average of 26 minutes on the website.



Map showing the cities where SRMS website users are based

Countries with the ten greatest number of users of the SRMS website (22nd May 2015 to 29th February 2020).

Country	Users	New Users	Sessions	Pages/Session	Average Session Duration (m:s)
United Kingdom	4,488	4,343	7,131	4.46	06:06
United States	113	113	161	3.06	01:57
Ireland	80	79	120	3.88	05:53
Germany	33	32	42	5.1	10:55
Spain	26	25	33	6.91	09:16
India	23	20	26	3.38	05:43
Netherlands	23	21	30	4.07	03:08
France	15	15	18	3.89	05:20
Australia	14	14	18	2.94	02:29
Italy	14	13	22	4.14	06:06

Countries with the ten longest session durations of the SRMS website (22nd May 2015 to 29th February 2020).

Country	Users	New Users	Sessions	Pages/Session	Average Session Duration (m:s)
Slovakia	2	2	2	6.5	26:25
Nepal	1	0	1	2	25:46
Kuwait	3	3	6	5.33	21:22
Taiwan	5	5	6	10.83	14:49
Brazil	4	4	5	4.2	12:55
Romania	2	2	3	3	12:18
Cambodia	1	1	1	23	11:34
Germany	33	32	42	5.1	10:55
Spain	26	25	33	6.91	09:16
Canada	12	10	12	5.25	08:29

Which pages are the most visited?

The number and distribution of visitors across the available pages indicate that the SRMS is providing a valuable resource. The most visited pages on the website have been the species pages, with 6,641 views to date.

Table 5: Types of pages receiving the most activity on the SRMS website (22nd May 2015 to 29th February 2020).

Type of pages	Total number of page views	Average time on page (m:s)
Species (including annual data tables and trends graphs)	6,641	0:53
Getting involved (including Raptor Patch)	4,581	1:09
Scottish Raptor newsletter	2,813	1:51
SRMG/SRMS Partners	2,661	1:00
Annual report	2,657	1:26
Advice (including Hardey species chapters)	2,320	2:50
About the SRMS	1,625	1:08
Contact	1,503	1:50
SRMS data (including Data Sharing & Use Policy)	1,467	1:32
Blog posts	1,417	2:36
Raptor conservation	902	2:00

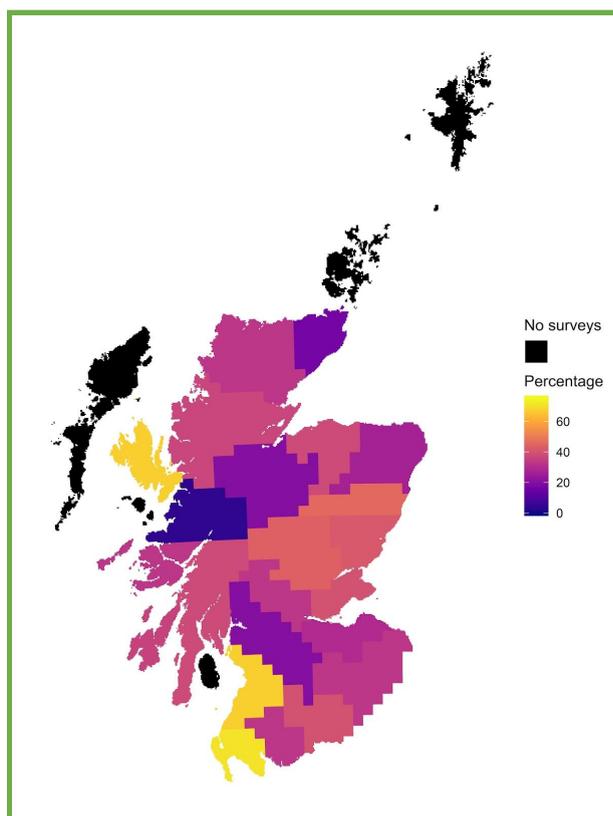
So if you have never visited the SRMS website before or you have not visited for a while, do come and take a look around: <http://raptormonitoring.org/>.

Project Owl in Scotland: Tawny Owl surveys

During 2018 and 2019 the BTO ran a UK-wide project - *Project Owl* - a set of interrelated research and engagement focused on our nation's Owls. Alongside several other projects, including supporting BTO Scotland's ongoing Short-eared Owl research, two of the major projects within Project Owl focused around better understanding the status and behaviour of Tawny Owls. Tawny Owls were chosen as the primary focus for several reasons. Firstly they're widespread in the UK (aside from being absent from Ireland). They are distinctive through their calls to even inexperienced volunteers despite rarely being seen making them an excellent engagement species. Perhaps most importantly, they are possibly undergoing a national decline, which has been detected in the daytime Breeding Bird Survey (BBS) - we wanted to confirm (or otherwise) this through more targeted surveys.

Tawny Owl Point Survey (TOPS)

The Tawny Owl Point Survey (hereafter TOPS) was an occupancy survey carried out during autumn 2018 (mid-August to mid-October) and repeating past surveys from 1989 and 2005 to investigate changes in occupancy over time. The survey followed a standardised methodology and was coordinated via the volunteers of the BTO Regional Network, drawing largely on existing BTO survey volunteers. The method involved carrying out multiple ten-minute-long surveys in a set of pre-selected tetrads (2 x 2 km squares), based on a grid of target 10-km squares. Volunteers typically did two visits of two consecutive survey periods from the centre of the tetrad, although there was some flexibility in the visit structure especially with regards to remote areas (much of Scotland). For each survey visit, volunteers recorded the date, time, weather conditions and of course whether they heard an owl.



Percentage of surveyed tetrads (2x2 km squares) in each Scottish BTO region recording a Tawny Owl at least once during the autumn 2018 Tawny Owl Point Survey (TOPS).

TOPS in Scotland

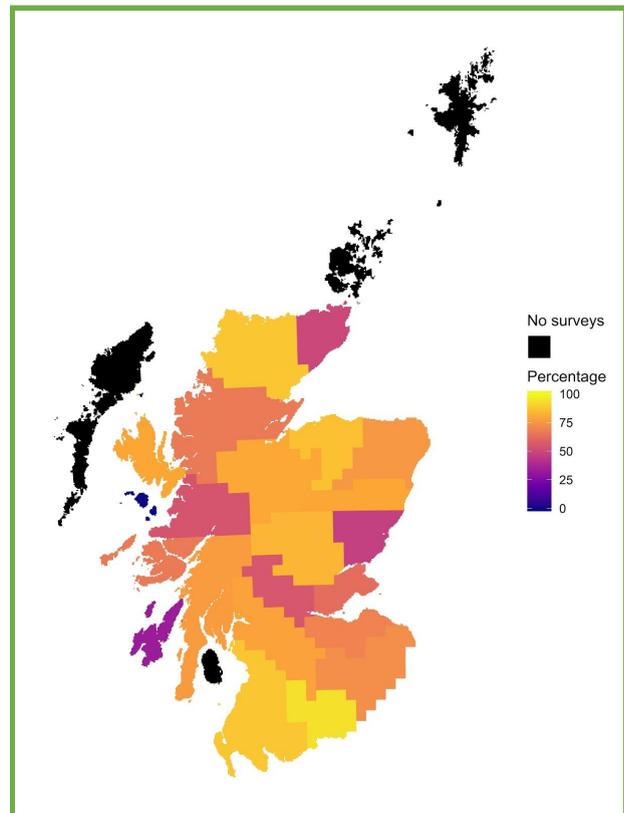
Across Scotland, 440 tetrads were surveyed, with 35% recording Tawny Owls at least once during a survey period. There was a relatively high degree of variation between Scottish BTO regions with Wigtown, Skye and Ayrshire all recording 67+% occupancy compared to under 30% for Aberdeen, Caithness, Inverness East and West, Lanark, Renfrew and Dunbarton and Lothian.

General findings

This survey results are still being analysed but we estimate once we allow for imperfect detection i.e. the fact that just because we have not heard an owl does not mean that one is not present, that there was a roughly 51% probability of a hearing a Tawny Owl in any given survey period assuming they were present. Taking this into account, there is evidence of a significant national decline in Tawny Owl occupancy, from an estimated occupancy of around 62% in 1989 and 65% in 2005 to 53% in 2018, and we are currently trying to identify why.

Tawny Owl Calling Survey (TOCS)

Compared to TOPS, the Tawny Owl Calling Survey (hereafter TOCS) was a more informal affair. It repeated a survey method used in 2005/06 and focused on changes in Tawny Owl calling behaviour overwinter and with different levels of urbanisation. The survey started on the 30th of September 2018 and ran until the 30th of March 2019. It was aimed at volunteers of all experiences. It was designed to be carried out from gardens, parks or any other area that may have Tawny Owls that could be visited repeatedly. The method used a 20-minute listening period one evening a week, with a target of completing as many weeks as possible. As with TOPS, for each survey evening volunteers recorded the date, time, weather conditions and whether they heard an owl. As a largely home based survey, it was run by the BTO's Garden BirdWatch team (GBW) and promoted via the BTO's Regional Network alongside social and more traditional media.



Percentage of surveyed 1 km squares in each Scottish BTO region recording a Tawny Owl at least once during the 2018/2019 Tawny Owl Calling Survey (TOCS). Note different scale.

TOCS in Scotland

In Scotland during the 2018/19 survey period, 627 people took part across 683 survey sites (1-km squares), carrying out 5956 surveys. Tawny Owls were detected on ~75% of Scottish squares at least once, slightly below the overall UK percentage of ~84%. Again there was a high degree of variation between Scottish BTO regions with Dumfries alongside Moray and Nairn both having over 90% occupancy (17 and 22 survey squares respectively) while a number of regions including Angus (17

squares), Islay, Jura & Colonsay (3 squares), Caithness (2 squares), Central (38 squares) and Inverness West had under 60% apparent occupancy.

General Findings

When again we allow for imperfect detection, we estimate nationally approximately 87.5% of squares were occupied by Tawny Owls with little evidence of changes since the 2005/06 survey, although we must remember that because volunteers could choose their own sites, TOCS wasn't really designed to investigate this unlike TOPS above, hence the rather different findings in the maps! Unsurprisingly Tawny Owls favoured broadleaf woodland, their preferred habitat and were less likely to be present in more urbanised areas, with artificial light highlighted as a key issue, although they could still occur well into our towns and cities.

In terms of activity and therefore detectability, we estimate there was a roughly 46% probability of hearing a Tawny Owl on any given evening overall, assuming they were present, but this was affected by a number of different factors. Over the course of the entire six month survey season, there was a general decline in Tawny Owl detectability, with a slight rise towards the end, fitting with the idea that Tawny Owls are most vocal in the autumn when juveniles disperse, are relatively quiet during winter itself and then more vocal again as the breeding season approaches. On a daily scale, Tawny Owl detection tended to drop over the course of the evening with a peak just after sunset. Owls were more detectable on bright moonlit nights and those with little cloud cover, presumably due to birds taking advantage of such favourable light conditions to hunt. They were also more active in warmer, drier conditions. This suggests the best time to survey Tawny Owls is during the autumn, soon after sunset on a dry, warm moonlit night.

Although none of the results are particularly unexpected, it is perhaps the first time that many of these factors have been brought together in one study. Not only will this allow us to better design future surveys for Tawny Owls to monitor their apparently changing population, it also highlights the potentially important negative effect that aspects of urbanisation, such as artificial light at night, can have on our wild birds. A further benefit of this survey has been to engage thousands of current and new volunteers across the UK with ornithological surveys and research.

We are preparing academic papers for both of these surveys, which we hope will be published sometime later this year. We are very grateful to all the volunteers who took part.

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