



Wildlife Disease & Contaminant Monitoring & Surveillance Network

WILDCOMS (Wildlife Disease & Contaminant Monitoring and Surveillance network)¹

Annual Report- 2012-2013

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Predatory Bird Monitoring Scheme
<http://pbms.ceh.ac.uk/>



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Executive Summary

This is the second annual report from WILDCOMS, a Natural Environment Research Council collaborative Knowledge Exchange network between nine UK surveillance schemes that monitor disease and contaminants in wild vertebrates. The overall aim of the WILDCOMS network is to foster and facilitate knowledge exchange, harmonisation towards best practice and productive collaboration between: (i) partner organisations; (ii) surveillance schemes and end-users. WILDCOMS aims to facilitate development of a more cost-effective and integrated evidence base for assessing environmental disease and contaminant risk that will benefit end-users and underpin regulatory policy.

This report describes the activities of the WILDCOMS network in the second year (2012-13) including an update in the communication tools (wiki, website, quarterly and annual reports for stakeholders) and activities, such as articles in specialised “in-house” publications of key stakeholders and presentations at national and international conferences. This report also describes how WILDCOMS has continued to expand the collaboration and sharing of resources between surveillance schemes in the network and the development of inventories of necropsies and recording activities across all partners’ schemes.

Overall, WILDCOMS is on track to meet its original goals set out in the grant proposal that was supported by NERC funding. WILDCOMS has established itself as a Knowledge Exchange network with a website that has up to 2000 visits per month and a mailing list of 396 stakeholders to date. The establishment of the network has facilitated greater collaboration and sharing of resources between WILDCOMS partners and has become a point of contact for organisations seeking advice in a wide range of wildlife pollution and disease.

We have had very successful meetings with stakeholders in England in 2012 and Scotland in 2013. Over the next year, WILDCOMS will continue its work to provide information to stakeholders on the activities and resources of its component partners’ schemes and holistic overviews on topics of current concern. It will also seek to further increase the efficient sharing of resources between partners, and further develop linkages with stakeholders.

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1. Introduction

Disease and contaminants can pose major risks to wildlife and human populations. Disease is a natural factor that affects wildlife, but some diseases warrant particular attention because they cause major mortalities that lead to population crashes, threaten wildlife species of high conservation concern, or pose a potential threat to Man. Environmental contaminants can also pose a risk to wildlife. This has been repeatedly demonstrated in the past, such as the catastrophic impact of organochlorine pesticides on predatory bird and mammal populations and the effects of diclofenac on vultures in south-east Asia. In the UK, various surveillance schemes monitor disease and contaminants in vertebrates.

WILDCOMS is a collaborative network formed between such schemes with the following aims:

- (i) to provide a focal point for disease and contaminant monitoring in wild vertebrates;
- (ii) to provide an integrated overview of the health status of UK wild vertebrates;
- (iii) to facilitate collaboration between WILDCOMS network partners;
- (iv) to facilitate identification of disease and contaminants of emerging concern.

The overall aim of the WILDCOMS network is to foster and facilitate knowledge exchange, harmonisation towards best practice and productive collaboration between: (i) partner organisations; (ii) surveillance schemes and end-users. It will facilitate development of a more cost-effective and integrated evidence base for assessing environmental disease and contaminant risk that will benefit end-users and underpin regulatory policy.

The specific objectives are to: 1) develop and maintain a sustainable WILDCOMS network; 2) increase effectiveness of information integration, sharing and dissemination across partner schemes, and between schemes and national and international stakeholders; 3) increase harmonisation, collaboration and efficiency of resource utilisation between schemes.

The WILDCOMS network was established and is currently maintained by a Natural Environment Research Council (NERC) Knowledge Exchange (KE) Grant (NE/I021063/1).

The project has four Work Packages (WPs) and the milestones for each WP are outlined in a Gantt chart (Fig 1). This annual on-line report briefly describes the activities and outputs for WILDCOMS that have been achieved during the second year (2012-13) of the lifetime of the NERC KE grant. These are grouped by WP.

Financial year	2011-2012				2012-2013				2013-2014			
Calendar year	2011		2012		2013		2014					
Start date: July 1st 2011	Project Yr 1				Proect Year 2				Project Year 3			
Within year quarter	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
WP1. Developing the network												
WILDCOMS advisory group formed	█											
Start-up meeting	█											
Web site maintenance and expansion	█	█	█	█	█	█	█	█	█	█	█	█
Telecon review of progress					█	█	█	█				
WILDCOMS Partners Meetings		█				█		█		█		█
Stakeholder's Forum								█				
ID & incorporate new members					█	█	█	█	█	█	█	█
Develop sustainable funding models					█	█						
Bids for further funding					█	█	█	█	█	█	█	█
WP2 Communication strategy												
Web domain established	█											
Wiki established	█											
Establish web site & initial pages	█	█										
Web site maintenance and expansion			█	█	█	█	█	█	█	█	█	█
Formulate communications strategy	█	█										
Quarterly reports					█	█	█	█				
Annual reports								█				█
Web site maintenance			█	█	█	█	█	█	█	█	█	█
WP3. Best practice guidelines and operational harmonisation												
3.1: Sample collection and processing		█	█	█								
3.2 Necropsy methods and recording					█	█						
3.3 Specimen archiving and inventory						█	█	█	█			
Review of WP3 and implementation of recommendations											█	█
WP4. European linkages												
Target conferences for WILDCOMS	█				█				█			
Attend EURAPMON steering committees								█				█
Attend EURAPMON workshops			█	█			█	█			█	█

Figure 1. Gantt chart for WILDCOMS

2. Operating the WILDCOMS network – WP 1

2.1. WILDCOMS advisory group

The membership of Advisory Group (AG) formed in the first year of the Network has been modified. Jennifer Best (SEPA) and Prof Robbie McDonald (Exeter University), continue to be part of the AG in the capacities of chairperson and representing the academia, respectively. Sara Dove from RSPB, representing NGOs, participated in one of the partners meetings. The partners agree that a more ad hoc approach to the AG may be beneficial, with relevant parties being invited to participate at relevant partner's meetings.

2.2. Partners meetings

The schemes involved in the WILDCOMS and participating in the partners meeting were [the original 9 founder schemes](#).

- Predatory Bird Monitoring Scheme (PBMS)- run by the Centre for Ecology & Hydrology (CEH)
- The Wildlife Incident Investigation Scheme (WIIS)- run by the Food and Environment Research Agency (Fera)
- Wildlife Incident Investigation Scheme (WIIS) Scotland- run by Science and Advice for Scottish Agriculture (SASA)
- Diseases of Wildlife Scheme- run by the Animal Health and Veterinary Laboratories Agency (AHVLA)
- Clean Seas Environment Monitoring Programme- coordinated by the Centre for Environment, Fisheries and Aquaculture (CEFAS)
- Cardiff University Otter Monitoring Project (CUOP)- run by Cardiff University
- Disease Risk Analysis and Health Surveillance Programme- run by Institute of Zoology (IoZ)
- UK Cetacean Strandings Investigation Programme- run by Institute of Zoology (IoZ)
- Scottish Environment Protection Agency (SEPA) Lipophilic Monitoring Network- run by the Scottish Environment Protection Agency (SEPA)

The network held Partners Meetings in November 2012 and September 2013, both in London. In the last meeting, applications from two further schemes (The National Fish Tissue Archive and Swansea Ecology Research Team (SERT)) to join the WILDCOMS network were tabled. The partners welcomed the opportunity to widen the network and the applications were agreed.

2.3. Stakeholders' Forum

The overall aim of the stakeholders' forum is to facilitate knowledge exchange between WILDCOMS partners and a wide range of stakeholders and, as a consequence, refine WILDCOMS activities to ensure the network remains relevant to changing pressures and stakeholder priorities.

The WILDCOMS network has agreed that stakeholders meetings (one per year) should be held in London, Wales and Scotland, to maximise attendance of stakeholders from national and devolved regional bodies. These meetings are smaller than originally conceived in the grant proposal but feedback from the Advisory Group strongly emphasised that smaller, more focused, meetings would be more effective and relevant for regulators and policymakers.

The first full stakeholders' meeting was held in London in November 2012. This meeting was attended by one or more representatives from the Pesticides Forum, Environment Agency, various departments from within the Department for the Environment, Food and Rural Affairs, the Animal Health Veterinary Laboratories Agency and Natural England. The second full stakeholders' meeting was held in Edinburgh in November 2013. This meeting was attended by one or more representatives from the Scottish Environment Protection Agency (SEPA), Scottish Society for the Prevention of Cruelty to Animals (Scottish SPCA), The British association for Shooting & Conservation (BASC-Scotland), the Wildlife Management Branch of Scottish Government and Scottish national heritage (SNH). The meetings were successful in raising awareness of the individual monitoring schemes and the WILDCOMS network with stakeholders and in gathering feedback from stakeholders as to the best way to disseminate information to them quickly and efficiently. It also facilitated the network to achieve some of its outputs, such as inclusion in the UK National Action Plan for the Sustainable Use of Pesticides (see page [13](#)).

The increasing visibility of WILDCOMS achieved through its stakeholder and other engagements has meant that the network is being contacted by different organisations seeking advice or requesting information. Two examples are:

- WILDCOMS has provided information to the [RISKSUR](#) project (an EU & DEFRA funded project to provide decision support tools for animal health surveillance) on surveillance activities for toxins and contaminants.
- WILDCOMS partners provided information and advice on the toxicological effects of polyisobutene (PIB) to the [RSPCA](#). This assisted the RSPCA in dealing with wrecks of dead or dying PIB-covered seabirds found on beaches in south West England.

2.4. Long term sustainability of the network

In the last partners meeting, the future sustainability of the WILDCOMS network beyond the termination of the NERC KE grant was discussed. Two different models were considered:

- 1- Continue to run the Network at full economic cost. This would require external funding and partners are investigating potential funding lines.
- 2- To maintain the network with a zero budget, (partners find own funding for reduced set of activities). The potential for this option was discussed and was agreed to be the default position should no external funding opportunities be found.

The format to run the network was as agreed and the following activities were decided:

- a. An annual meeting over 1-2 days
- b. 6 months horizon scanning telecons
- c. Maintenance of the WILDCOMS website
- d. Maintenance of the WILDCOMS newsletter.

3. Development and delivery of a communication plan – WP2

This WP has two key communication tools and a three part communication plan.

3.1. Key tools for the WILDCOMS network communication

3.1.1. Website (<http://www.wildcoms.org.uk/>)

The WILDCOMS website provides an overview of the role of disease and contaminant surveillance in the UK, describes the WILDCOMS network and activities, has links to the partners' schemes, and is used to disseminate WILDCOMS publications and outputs, including the Quarterly Reports (QR) (see [Section 3.2.1.](#))

The web pages set up in the first year have been maintained and updated regularly with news and activities from the WILDCOMS partner schemes, as well as other relevant information.

As can be seen in Fig. 2, the number of visitors to the site varies daily and the highest daily number to date is 600.

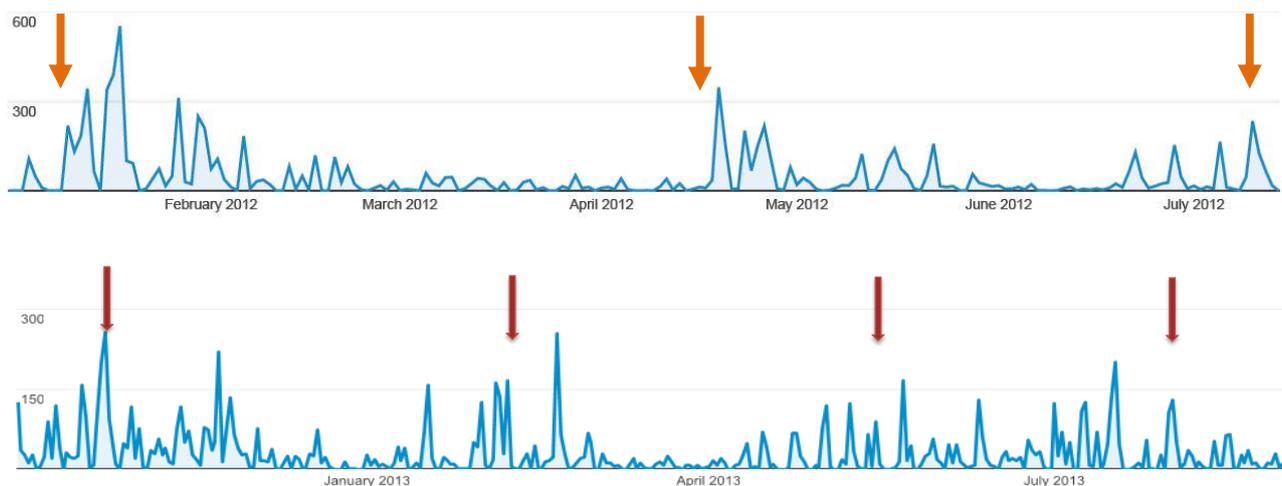


Figure 2. Daily number of visitors to the WILDCOMS website. Arrows indicate approximate date of QR publication.

Overall, the number of visitors to the website in 2013 has been broadly similar to that in 2012 although the pattern of visits has changed, with less marked variations in the numbers of hits in 2013 compared with 2012 (Fig. 3). The relatively high variability between months in 2012 appeared to be related to publication of the quarterly newsletter, with high numbers of website hits after the publication of a newsletter (Fig. 2). The data on total page-views suggests that the amount of traffic to the WILDCOMS website has remained broadly steady across the two years but that the impact of publication of the quarterly newsletters has diminished.

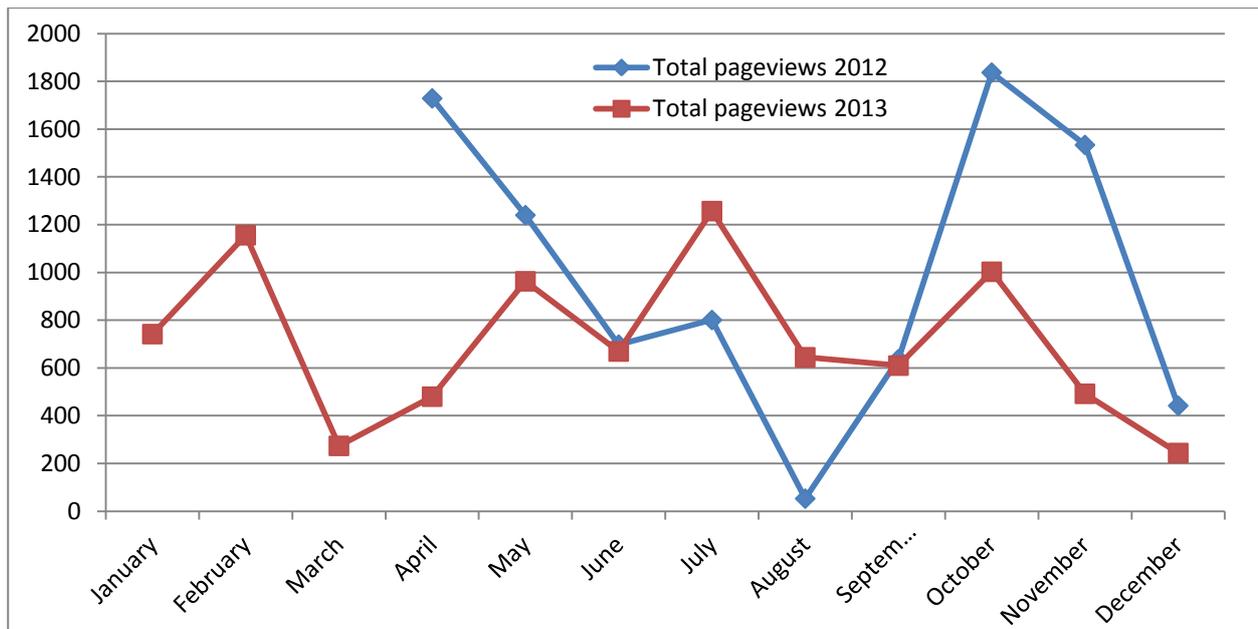


Figure 3. Total page-views per month for the WILDCOMS website in 2012 and 2013.

3.1.2. Wiki

The wiki is hosted by CEH, and is a web-based area that allows partners' collaboration on WPs and other projects.

3.2. Three part communication plan

3.2.1. Reports

In the proposal for WILDCOMS, two types of reports were planned: a quarterly report (QR) and an annual report.

[The quarterly report \(QR\)](#) consists of: i) a "spotlight" that focuses on a specific area or topic and brings together information from multiple schemes to present a more holistic overview; ii) news from the partner schemes; iii) news of WILDCOMS activities and events. The QR is intended to be relatively short so it can be rapidly assimilated by its readership. It can be read on-line or a pdf version can be downloaded and/or printed. An example is given in Fig. 4.

We have now published eight QRs on the website. So far, the “spotlights” have been on “PCBs”, “Emerging hazards and risks”, “wildlife and zoonoses”, “rodenticides”, “Summary of the existing practices of the partner schemes in WILDCOMS”, “Mercury (Hg)”, “Monitoring activities in Scotland” and “Citizen Science”.

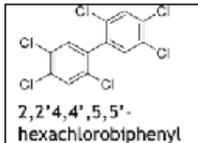


NEWSLETTER: Number 1

Winter SPOTLIGHT 2011

Polychlorinated biphenyls (PCBs)

PCBs, widely used by industry and in commercial products, have escaped from open sources and damaged/degraded closed sources to cause global contamination of food chains. PCBs are toxic, persistent, bioconcentrate in top predators and have been associated with adverse effects, particularly on reproduction. PCB production was banned in the US and some European countries in the 1970s and the EU Council Directive 96/59/EC set a 2010 deadline for complete disposal or decontamination of equipment containing PCBs. Wildlife have been monitored to see how effective the ban has been in removing PCBs from the environment. We summarise information from multiple WILDCOMS partners to provide an holistic UK synthesis of how environmental contamination by PCBs has changed.



Freshwater habitats: Nine PCB congeners (105, 118, 128, 138, 153, 156, 170, 180 and 187) have been detected frequently in Eurasian otters (*Lutra lutra*) from England and Wales. All, except congeners 128 and 170 have shown clear progressive declines between 1992 (start of monitoring) and 2009. PCBs 128 and 170 also declined in concentration up until 2005 but then increased; the cause of this is unclear. Data from the Cardiff University Otter Project (CUOP).



Marine habitats: The summed concentration of a standard suite of 25 PCB congeners in UK-stranded marine mammals (mainly harbour porpoises, *Phocoena phocoena*) declined in the early 1990s but has remained constant since 1997. This contrasts sharply with organochlorine pesticides (DDTs, dieldrin, etc.) that have declined steeply in a range of marine species including harbour porpoises. Increased susceptibility to infectious disease and mortality is strongly associated with the most highly contaminated porpoises. Even higher PCB levels are found in UK-stranded bottlenose dolphins (*Tursiops truncatus*) and killer whales (*Orcinus orca*) and are potential drivers of population declines in these species. Data from the UK Cetacean Strandings Investigation Programme (CSIP) in collaboration with CEFAS.



Gannet (*Morus bassanus*) eggs from Bass Rock (North Sea) and Ailsa Craig (eastern Atlantic) have been monitored for 36 PCB congeners since 1990. PCBs 153, 138, 180, 118 and 170 predominate. Concentrations of all these congeners declined over time in eggs from Ailsa Craig, whereas some congeners (PCB 153, 180) remained stable over time or increased slightly (PCB 170) in eggs from Bass Rock. Data from the Predatory Bird Monitoring Scheme (PBMS).

Terrestrial habitats: PCBs have been monitored in three avian top predators, the sparrowhawk (*Accipiter nisus*) from lowland and upland habitats, and the merlin (*Falco columbarius*) and golden eagle (*Aquila chrysaetos*) from the rural uplands. Analysis of 36 PCB congeners in sparrowhawk livers has been carried out since 1990 and the predominant congeners are PCBs 153, 180, 187 and 138. There has been no significant change since 1990 in the summed congener concentration. In contrast, summed PCB congener concentrations have declined over time in merlin eggs and in the eggs of inland-nesting golden eagles. Egg PCB concentrations for coastal nesting golden eagles have not declined over time and are higher than those of birds that nest inland. Data from the PBMS.



Summary of patterns over time

PCBs 153, 138, 180, 118 and 170 are the dominant congeners in vertebrates across different UK habitats. Declines have been observed in most but not all congeners in vertebrate sentinels for marine and freshwater systems. The picture is more mixed for the terrestrial environment. Summed PCB congener concentrations have declined in species from upland, remote areas (perhaps reflecting decreased long range transport and deposition) but not in sparrowhawks that are from rural and more urbanised areas (which may also have localised inputs). Overall, current PCB levels in biota may represent those maintained by current diffuse inputs and historic contamination and future declines may only be slow.

Scheme News

Predatory Bird Monitoring Scheme (PBMS). The Royal Society for the Protection of Birds (RSPB) has recently become one of the funding stakeholders of the PBMS (<http://pbms.oth.ac.uk/news.asp>).

Wildlife Incident Investigation Scheme. Following an investigation by WIIS in England a pest control company was fined a total of £3,350 for not taking all reasonable precautions during a rodent control treatment. <http://www.pesticides.gov.uk/approvals.asp?id=3064>

Scottish Wildlife Incident Investigation Scheme. SASA has contributed to the book "Carbofuran and Wildlife Poisoning: Global Perspectives and Forensic Approaches" published in November 2011 ISBN: 978-0-470-74523-6 (<http://www.wiley.com/WileyCDA/WileyTitle/productCd-0470745231.html>)

Cardiff University Otter Monitoring Project. DNA sequencing has confirmed the presence of *Pseudamphistomum truncatum* in the aquatic snail *Radix bathica*, a previously unreported intermediate host for this parasite.

WILDCOMS events

The WILDCOMS website <http://www.wildcoms.org.uk/> is currently under construction and some pages have yet to be populated. All future outputs from WILDCOMS will be published on the website.

Prof Richard Shore (CEH), the principle Investigator for the PBMS, was an invited speaker at the 4th SETAC Europe Special Science Symposium in Brussels (25th-26th October 2011) on *The Environmental Risk Assessment of Biocides: Regulatory Challenges and Scientific Solutions*. Richard gave a presentation on "Anticoagulant rodenticides, relating field measurements to protection goals" and highlighted the role of WILDCOMS in integrating the information gained from different surveillance and monitoring schemes. The presentation can be downloaded at http://sesss04.setac.eu/embed/sesss04/SHore_Richard.pdf

Dr Thomas Mose (CEFAS), the representative for the Clean Seas Environment Monitoring Programme in the WILDCOMS network, will present a poster outlining the aims and activities of WILDCOMS at the Society of Environmental Toxicology and Chemistry's 6th World Congress in Berlin (20-24 May 2012).

CONTACT US:

If you would like to see a particular topic in the "spotlight" section of the WILDCOMS quarterly bulletin, or would like to contact us about other WILDCOMS related matters, please e-mail the WILDCOMS coordinator, Dr Gloria Pereira (mgids@ceh.ac.uk)

Figure 4. Example of a Quarterly report

When a new QR is published on the WILDCOMS website, an e-mail alert is sent to stakeholders that include a wide range of governmental and non-governmental organisations, academics and other interested parties (Fig 5.). The alert list is currently comprised of about 396 individuals, which is an increase of just over 30% in the last year, spread across all sectors. About a fifth of those new subscribers have requested to receive the e-mail alert while the remainder have been identified by the WILDCOMS partners as individuals that are interested in their activities. All recipients of the alert are given the choice to opt out from receiving future alerts but only four individuals have chosen this option to date.

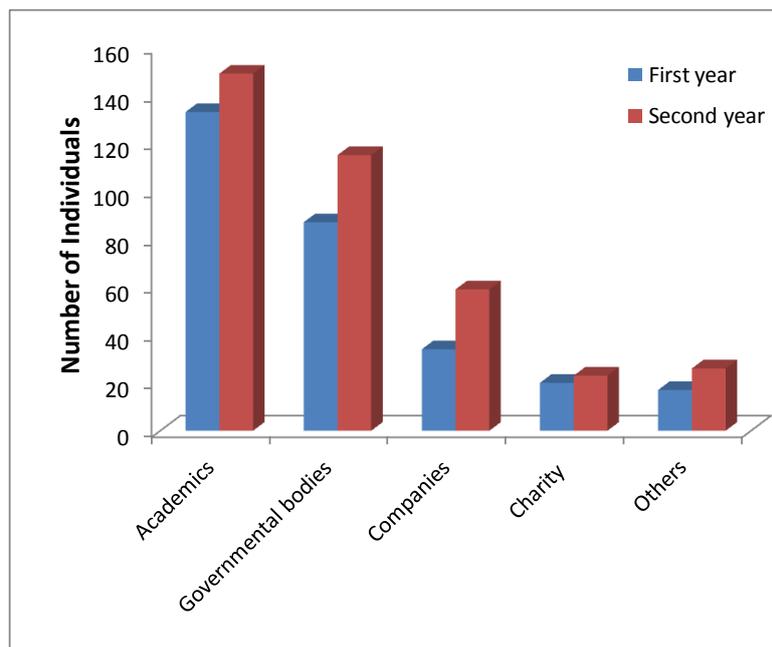


Figure 5. Distribution of organisations to which the newsletter alerts is sent.

The website statistics suggest that publication of the quarterly newsletters may not be having the expected impact (based on 2012 statistics) of increasing the number of visitors to the website to read or download the newsletter. WILDCOMS will revisit the format and content of the newsletters in 2014 to consider ways of increasing interest and readability of the newsletter.

[Annual reports](#) synthesise WILDCOMS activities and outputs for each year. The current report is the second annual WILDCOMS report. Annual reports are all available for download from the WILDCOMS website and are archived in the NERC Open Research Archive ([NORA](#)) which facilitates access using standard bibliographic searching methods.

3.2.2. Trade magazines and press releases

This part of the communication plan deals with WILDCOMS communications and outputs which are presented in trade magazines and press releases. The aim is to widen the range of people and

sectors of activity that are aware of the WILDCOMS network and may want to interact with partner schemes. The overall target outlined in the original grant proposal was five articles for in-house or trade journals over three years. So far over the two years, an article entitled "[Corpses needed for environmental assessment](#)" has been published on the NERC's [Planet Earth Online](#) and an online article was published in Defra's Landscape publication in October 2012, entitled "[Wild things: new partnership creates a 'one-stop-shop' for monitoring disease among wildlife](#)". Articles on WILDCOMS have also been published by the British Ecological Society Bulletin (Chadwick, E., Pereira, G. & Shore R. 2012. WILDCOMS- A disease monitoring network. *Bulletin of the British Ecological Society* 43(4) 44-45), and by the [British Society for Parasitology](#).

3.2.3. National conferences and meetings

This task was designed to widen dissemination about WILDCOMS through presentation of posters and oral presentations at national conferences and meetings. It was agreed at the WILDCOMS start-up meeting that, for logistical ease, this task would be incorporated into WP4.

4. Increased operational harmonisation – WP3

This WP focuses on increasing harmonisation, collaboration and efficiency of resource utilisation. This is related primarily to operations common to partners' schemes, namely sample collection and processing (WP3.1 on the [Gantt chart](#)), necropsies and recording (WP3.2) and specimen archiving (WP3.3). Each task comprises: (i) review and description of existing practices; (ii) recommendations on best practice where appropriate; (iii) quantification of current sharing between schemes, of samples, methods and data; (iv) recommendations as to how collaboration can be increased and activities rationalised to eliminate duplication or overlap. The three tasks are to be conducted sequentially and the deliverables from each will be a report, guidelines of best practice and inventories.

In the first year, our main aim was to compile an inventory between WILDCOMS partners of Sample collection and processing (WP3.1). This information was published in the website and reported in last year's annual project. In the second year we focused on the compilation of an inventory of necropsies and recording (WP3.2). This information has been compiled into an Excel workbook that can now be accessed and downloaded from the WILDCOMS website where it is held under the "[Project Outputs](#)" tab. The workbook contains the source of the material analysed by each scheme, the criteria for examination, species type, the aim and type of post-mortem examination, specialist procedures and links with other schemes, among others.

As part of these outputs, we have compiled an inventory to quantify current sharing of samples between schemes. This information will be made available on the website and some of this is described in Section 6 of this report.

5. National and European Knowledge Exchange – WP4

WP4 was originally conceived as being the lead for extending and adapting the WILDCOMS network to a European scale. This remains an objective but this WP has also incorporated responsibility for knowledge exchange at a national level, as achieved through presentations and posters at national conferences.

The activities in this WP have focussed on two areas: i) presentations at key national and European meetings and ii) extension of WILDCOMS to the European scale. The extension to a European platform will depend on the future funding.

5.1. Presentations at national and European conferences

Poster and oral presentations have been presented at nine meetings (five national, four European) (Table 1) by various WILDCOMS partners and the WILDCOMS coordinator.

Table 1. List of conferences where WILDCOMS work was presented.

National	European / International
<i>The Clean and Safe Seas Evidence Group (CSSEG)- Oral presentation in January 2011</i>	<i>SETAC (Society of environmental toxicology and chemistry) world meeting in Berlin- Poster presentation in May 2012</i>
<i>SEPA- Oral presentation in January 2012</i>	<i>OSPAR – Oral presentation in December 2011</i>
<i>Aspects of Wildlife Crime and Conservation, University of Chester- Oral presentation in March 2012</i>	<i>American Society for Mass Spectrometry - 2012</i>
<i>58th Spring Conference & AGM of the Mammal Society- Oral presentation in April 2012</i>	<i>European Wildlife Disease Association - Joint 61st International WDA & 10th Biennial EWDA Conference- Convergence in Wildlife Health Lyon, France- Poster presentation in May 2012</i>
<i>GB Wildlife Disease Surveillance Partnership- Oral presentation in June 2012</i>	

5.2. Extending WILDCOMS to the European scale

In the first year report we discussed the engagement of WILDCOMS with the European Network [“Research and Monitoring for and with Raptors in Europe” \(EURAPMON\)](#). The link to the EURAPMON continues to develop. EURAPMON is seeking ways to gain future funding to develop a sustainable European network and WILDCOMS is well positioned to represent UK schemes in this endeavour.

WILDCOMS has facilitated the development of inventories by EURAPMON. The templates created by WILDCOMS to collate information regarding activities of partner schemes were adopted and adapted by EURAPMON to gather information on monitoring chemicals in raptors across Europe.

6. **WILDCOMS – increasing cooperation between partner schemes**

The formation of the WILDCOMS network has facilitated an increase in collaboration between partner schemes. This was one of the key objectives behind forming the network. Some of the collaborations started last year, others continued and these include:

- In partnership with the GB Wildlife Disease Surveillance partnership, WILDCOMS facilitated exchange of information between the PBMS and the Animal Health and Veterinary Laboratories Agency’s (AHVLA) screening of West Nile Virus (WNV) in birds. This virus is transmitted when a mosquito bites an infected bird and then bites a person. Samples from birds of prey submitted to the PBMS for contaminant monitoring are now shared with the WNV monitoring team and supplement the current extent of screening in wild birds in the UK.
- WILDCOMS continues to facilitate collaboration between the PBMS and the CUOP which has included quantifying the extent of contamination in otters by heavy metals and by flame retardants ([click here for reports by Walker et al., 2011, 2012](#))².
- WILDCOMS continues to facilitate collaboration between WIIS, the PBMS and the DRAHS Programme on the sharing and processing of red kite samples for analysis of contamination by lead and by anticoagulant rodenticides.
- WILDCOMS has facilitated the collaboration between WIIS, WIIS-Scotland and the PBMS (and through EURAPMON, with several European researchers) on a study to develop statistical techniques to estimate the percentage of individuals in a population that are poisoned by anticoagulant rodenticides.
- WILDCOMS made a response on behalf of its partner schemes to the Chemicals Regulatory Directorate as part of its stakeholder engagement on their UK National Action Plan for the

² Walker, L.A., et al., 2011. *Inorganic elements in the livers of Eurasian otters, Lutra lutra, from England and Wales in 2009 - a Predatory Bird Monitoring Scheme (PBMS) report*. Centre for Ecology & Hydrology, Lancaster, UK.; Walker, et al., 2012. *Polybrominated Diphenyl Ethers (PBDEs) in Eurasian otters (Lutra lutra) collected from Britain in 2010: a Predatory Bird Monitoring Scheme (PBMS) Report*. Centre for Ecology & Hydrology, Lancaster, 14pp.

Sustainable Use of Pesticides. The role of WILDCOMS as a non regulatory indicator measure in the UK national action plan was highlighted in the [published plan](#).

- AHVLA has been providing samples for monitoring and archiving to the PBMS.
- WIIS has provided information and suggestions for analysis of ivermectin to the AHVLA when they had a case of suspected ivermectin toxicity.
- Changes in restrictions of use for second-generation anticoagulant rodenticides are coming into force in 2013/14 together with an industry-led stewardship scheme. Monitoring of exposure and/or mortality incidents in wildlife associated with these compounds is currently conducted by four WILDCOMS partners, [WIIS](#) and [AHVLA](#) (for England and Wales), [WIIS-Scotland](#), and the [PBMS](#). WILDCOMS has facilitated coordination between these partners in terms of outlining how their existing monitoring activities for rodenticides in wildlife can be linked to assess the effects of the changes in use. A briefing document from the partners was sent to the Health & Safety Executive, the regulatory body for rodenticides, and to the Campaign for Responsible Rodenticide Use (CRRU), an industry consortium that is leading the development of the stewardship consortium.

In the last two years, there also has been an increase in the exchange of sample and information between schemes (Table 2). This has helped increase the number of analyses carried out by different schemes, thereby adding value to individual schemes.

Table 2. Exchange between WILDCOMS partner schemes during 2012 and 2013.

Original Scheme	Receiving Scheme	Sample Details	Purpose
PBMS	AHVLA	Brain subsamples from various species	For seasonal West Nile Virus screening
DRAHS	PBMS	Various tissue samples; predominantly from Red Kites	For rodenticide monitoring and archiving
PBMS	WIIS (fera)	Muscle samples from merlins	For DNA sequencing
PBMS	WIIS (fera)	Barn owl and red kite liver sub-samples and/or referrals	For investigation of illegal poisoning by WIIS
CUOP	PBMS	Otter liver sub-samples	For analysis for brominated flame retardants
PBMS	DRAHS	Sparrowhawk samples	Samples used for inclusion in survey of avian trichomoniasis in predatory birds
AHVLA	PBMS	Barn Owl samples and others	Samples used for contaminants monitoring and archiving

7. Conclusions

Overall, WILDCOMS is on track to meet the goals set out in the original proposal supported by NERC. In this second year we continued to maintain and expand the communication tools for WILDCOMS including the Wiki and the website and continue to publish quarterly reports. The substantial e-mail alert list for Quarterly Reports has grown through the year, and is now of around 400 individuals.

WILDCOMS has also published 4 (of a minimum target of 5 over three years) articles for in-house or trade journals and nine (out of a minimum target of six over three years) posters and presentations have already been given over the last two years. The second of the WPs that provide an inventory of activities across all WILDCOMS partners' schemes ("necropsies and recording activities") has been made available on the WILDCOMS website. Progress on collating information across partners' schemes (WP3.3) is on schedule. We have also compiled a list of the ways that WILDCOMS partners are collaborating and sharing resources. This document will be made available in the website in the near future.

In the first year, the network engaged with stakeholders through its stakeholder workshop in England and in this second year, through its stakeholder workshop in Scotland. In the next 12 months we are planning a further stakeholder meeting with key policy regulators in Wales. In this way, WILDCOMS is also helping its schemes address and bring value to what is an increasingly devolved environmental agenda in the UK.

In this second year WILDCOMS also strengthened its links to industry, through a presentation to industry and NGOs at Defra's November 2012 Chemical Stakeholders Forum.

The network has also welcomed two new member schemes.