



ERBFacility

**EUROPEAN RAPTOR
BIOMONITORING FACILITY**

COST ACTION 16224

Working Group 4 Workshop

**FURTHER DEVELOPING A EUROPEAN RAPTOR
SAMPLING PROGRAMME (ERSamP) AND OTHER FIELD
ARENA WORK AREAS**

Museo Storia Naturale 'La Specola', Florence, Italy
7 – 8 March 2019



This event is organised by COST 16224 Action European Raptor Biomonitoring Facility and supported by COST (European Cooperation in Science and Technology).

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COST is supported by the EU Framework Programme Horizon 2020.



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Scientific Organising Committee:

Chris Wernham, Chair WG4
Al Vrezec, Vice-Chair ERB Facility, WG4 Team
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Background and objectives

Working Group 4 (WG4) focuses on the field arena – collecting the right samples and contextual data (e.g. population and demographic data) to support the overall ERB Facility priority contaminant analyses and the development of an overall pan-European Raptor Biomonitoring Scheme in future. This workshop was convened by WG4 to further develop its work plan for Grant Period 2 of the COST Action.

During the workshop our specific objectives were:

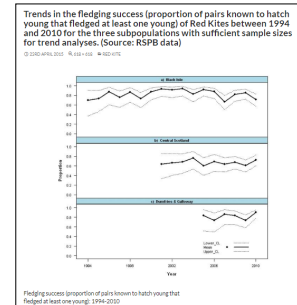
1. To consider further the **structure of ERSamP** (the European Raptor Sampling Programme framework) and do some work to consolidate the draft documentation (a –planned deliverable for Grant Period 2).
2. To consolidate previous discussions of **constraints to effective operation of ERSamP** and discuss and document possible solutions/mitigating actions.
3. To consolidate and plan next stages of the work on **generic guidance for (a) collection of samples for contaminants analysis and (b) supporting contextual data (population and demographic data, diet, environmental data etc)**.
4. To begin detailed discussions around the range of **participant types ('actors')**, both individuals and organisations, that need to be engaged in order for ERSamP to be effective, and document ideas on **their needs and how to motivate them to take part**. This included consolidating what is known already about the existing and potential availability of these people and organisations across Europe (e.g. with reference to the ringing review and previous reviews by Derlink et al. and Gomez-Ramirez et al.) and discussing what other information is still required and how to collate it.
5. To consider the potential for **proof of concept case studies to test one or more pathways for the collection of new samples for analysis** (a planned deliverable for the COST Action).

Workshop Introductory Session and Presentation

Chris Wernham (Lead, WG4) welcomed participants to the meeting and gave an [introductory presentation](#), reminding participants of the role of WG4 and its workplan to date, and covering the plans for the short workshop in Florence. Participants were reminded of previous workshop sessions (in Thessaloniki), which had developed thinking on the different types of contextual data that might be required as part of a European Raptor Sampling Programme (ERSamP) – see box opposite. Participants were also reminded of the draft best practice guidance that had been put together by Lucie Michel (Short-Term Scientific Mission holder) on Peregrines and other falcons (also the subject of previous workshop sessions in Thessaloniki). It was agreed that specific additional workshop sessions on these two topics were not required in Florence but that any further suggestions or comments should be sent to WG4 (via Chris Wernham).

Types of 'contextual data'

- 1. Basic obligatory data about the matrix sample collected**
(e.g. date, time, location, collector's name, species, sample type, type of feather, ring number, **unique individual ID**)
- 2. Data about the individual bird / pair from which the sample is taken**
(age, sex, condition, body measurements, diet, breeding performance, movements – tracked birds, behavioural observations e.g. aggressiveness, **unexpected observations e.g. abnormalities**)
- 3. Data about the population of birds from which samples are taken**
(e.g. population trends, breeding productivity and trends, timing of breeding and trends, population diet, population movements – **relevant contaminant source area**)
- 4. Relevant environmental data**
(e.g. local sources of contamination, **local cropping/land management**, photos of immediate surroundings)

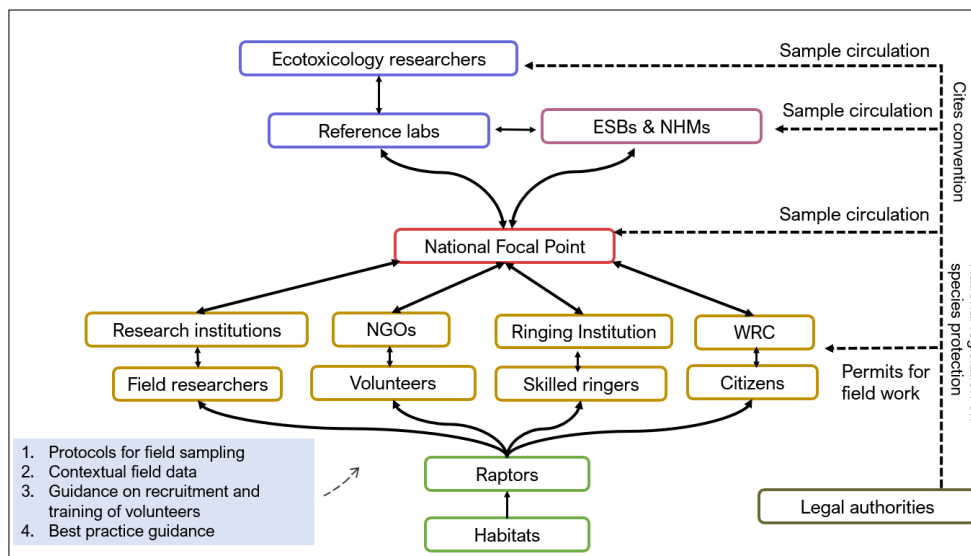


Workshop Topic 1

European Raptor Sampling Programme (ERSamP)

In her [introductory presentation](#), Chris Wernham showed participants the initial structure of a European Raptor Sampling Programme (ERSamP) framework and a summary of the different elements that such a framework might comprise (see below).

DRAFT - European Raptor Sampling Programme (ERSamP)



- The collection of the right samples from the right locations at the right times
- Standards and protocols to ensure harmonised sampling methods and recording of contextual data

European Raptor Sampling Programme (ERSamP)



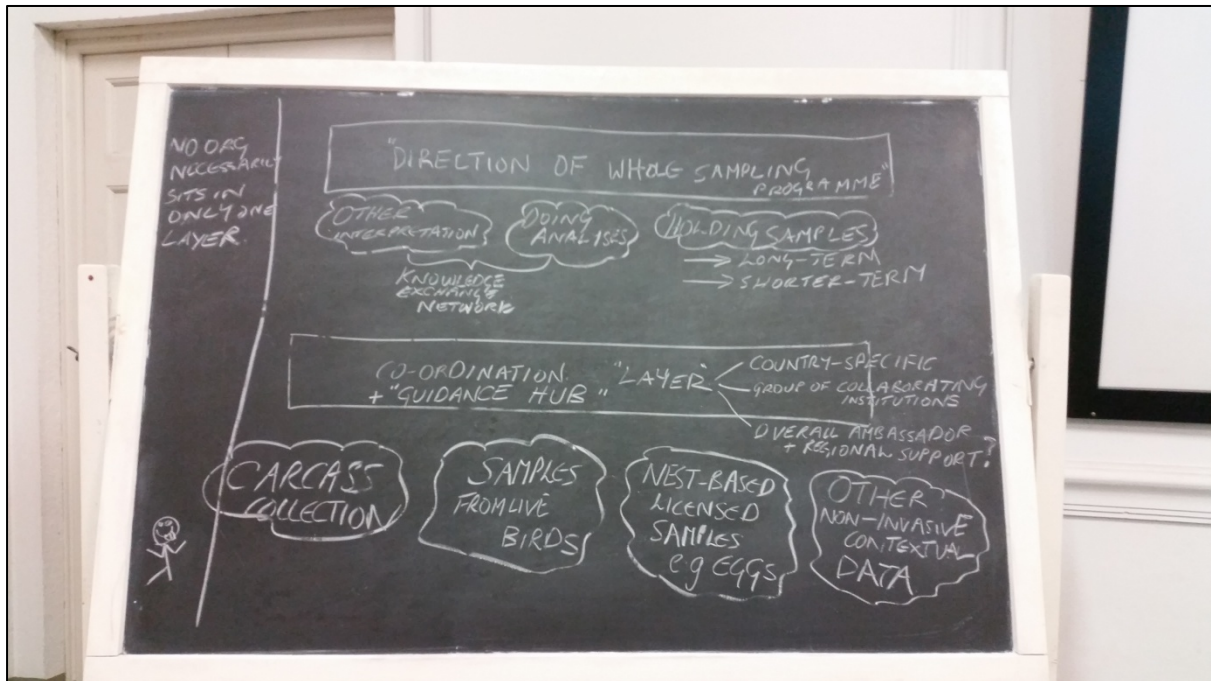
- **Vision and overall objectives** of the Sampling Programme
 - Focal **contaminant types, sample types, traits/species** and **geographical areas** (sample sizes)
 - Generic **best practice guidance – sampling protocols** – Espin *et al.* EURAPMON – enhanced
 - Generic **best practice guidance** – collection of **contextual data**
 - data relevant to individual sample (e.g. date, time, species, age, sex, location etc – essential)
 - data relevant to individual bird (e.g. breeding success, movements)
 - data relevant to population (e.g. population trends, timing of breeding productivity, survival, movements) e.g. Hardey *et al.* *Raptors – a Field Guide to Survey and Monitoring*
 - environmental data – (e.g. known contaminant sources; local land use)
 - **Project- and species-specific best practice guidance** (e.g. falcons; vultures)
 - **People and institutions** available to collect samples and contextual data in the field
 - Generic **best practice guidance on how to engage / motivate / train field participants** by actor group
 - **Project-specific guidance for involving people in the field** e.g. for proof of concept studies
 - Consideration of **national ambassadors / coordinators / focal points**
- The collection of the right samples from the right locations at the right times
 - Standards and protocols to ensure harmonised sampling methods and recording of contextual data

Participants had an open discussion (in plenary) about the vision for ERSamP and in particular about how the structure was characterised. Whilst field arena (WG4) participants had discussed the draft structure previously, it was the first time that some WGs 1-3 members had provided their thoughts.

Key points agreed were:

- Whilst the whole ERSamP aims to be pan-European, in order for it to be successful there will need to be effective coordination at national scale.
- It is currently envisaged that 'National ERBF Ambassadors' would be engaged to provide effective links between the field (samples and contextual data collection), storage (museums and specimen banks) and analytical parts of ERSamP.
- Some concerns were expressed over how difficult it would be to make one individual/organisation the 'Ambassador' in some countries – this might be feasible in countries where there is little existing infrastructure and activity around contaminant sampling using raptors but could be problematic (even divisive) in countries where there are already many active players involved.
- It was suggested that focal points might need to be at the top of the ERSamP structure (i.e. the need for high level coordination of the whole sampling programme) and there was some (brief) discussion of different ways in which this might be achieved.
- It was agreed that it was important not just to consider the simple (draft, ideal) structure but also structures and coordination that already exists in different countries and how this current capacity could be developed towards the pan-European model (taking a more practical approach to delivery).
- Some particular actors not currently named explicitly in the structure were suggested for adding (e.g. National Park Authorities and their ranger services).
- It was noted that many organisations/actors did not just take one role within the draft structure but often took several roles. For example, currently most contaminant analyses using raptors are carried out by research institutes that also collect most of their own samples.

- It was agreed that it is probably more helpful to consider the ERSamP structure in terms of functions rather than types of organisations/actors – and together we drafted a revised structure at the workshop (see photograph below).
- It was also suggested that one or more case studies would be helpful to work through to assess how any future ERSamP might function (which could be linked to an ERB Facility Proof of Concept Study – see below).
- We aim to have a document outlining the structure of ERSamP (including decisions still to be taken) by the end of Grant period 3 (end of April 2020). The role of ERSamP Ambassadors will be discussed further at a future WG4 workshop in autumn 2019.



Workshop Topic 2 Constraints to the effective operation of any future ERSamP

WG4 workshop discussions to identify an initial list of constraints were held in Thessaloniki in February 2019 and subsequently a questionnaire was sent out via the ERB Facility network to find out more about views on constraints and possible solutions. Four groups of constraints were identified previously (see below). Maria Dulsat Masvidal (STSM holder) gave a [presentation on progress with this constraints work](#). In this she presented initial thinking on five types of solution: (a) best practice guidance; (b) capacity building; (c) co-ordination; (d) species prioritization; and (e) additional projects/funding needs. All participants were encouraged to circulate the questionnaire as widely as possible. Following the completion deadline, the results will be written up in a paper for a peer-reviewed publication and solutions will be developed further in a technical report during Grant Period 3.



1. Legal constraints

(relating to the legislation for handling and sampling raptors and moving samples around – focus on within country movements)

2. Methodological constraints

(relating to best practice guidance for sampling and collecting contextual data and its availability)

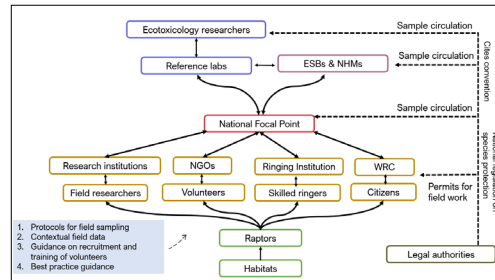
3. Constraints posed by spatial distribution of monitoring coverage

(use of information from Gomez-Ramirez *et al.* and Derlink *et al.* EURAPMON inventory work)

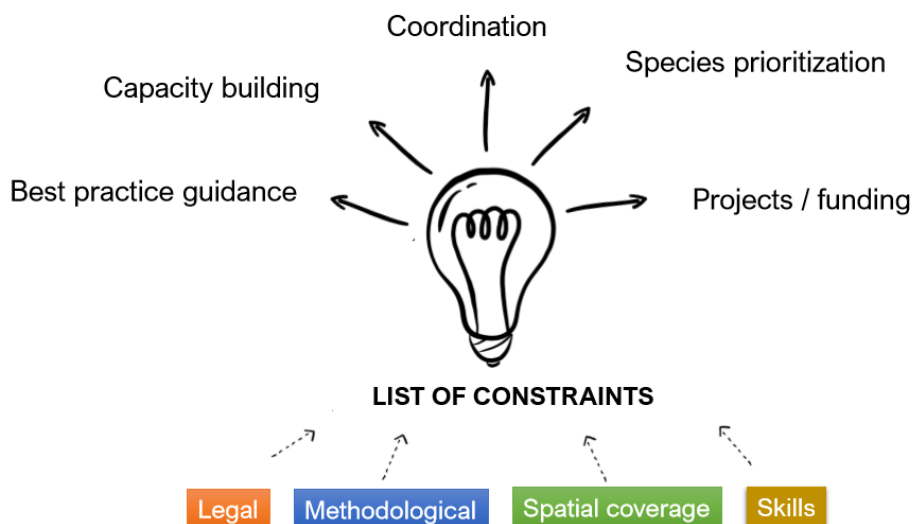
4. Constraints posed by need for skills and knowledge in the field

(which types of field participants could help collect samples)

Constraints and solutions work



Constraints Solutions



Workshop Topic 3 Proposed ERB Facility Proof of Concept Study

Following initial ideas for a Proof of Concept study discussed briefly at the previous workshop in Thessaloniki (February 2019), Rafa Mateo gave an updated [presentation on a proposed ERB Facility Proof of Concept study](#).

Rafa Mateo presented thoughts on:

- sample sizes and distribution of samples
- Focal species
- Sample types
- Focal contaminants
- Considerations around obtaining samples (from the field and/or existing collections)
- Considerations for laboratory analyses

There was much support for the idea of the proof of concept study from workshop participants. During the subsequent plenary discussion, the following points were agreed:

- The aim of the study should be to demonstrate the feasibility of a future European Raptor Biomonitoring Facility and ERSamP, not to choose/demonstrate the best raptor species for contaminant monitoring overall. Species would be selected to meet the criteria/objectives of the study.
- The 100 x 100km sampling grid was supported, and was thought to be particularly valuable because it could easily show the degree to which sampling coverage was achieved and where there were still gaps. It was suggested that the selected grid should be compatible with the 50 x 50km grid used to collect data for the EBCC European Bird Atlas, so that population information for focal raptor species would also be available for grid squares from which contaminant samples were collected.
- The focal species should have widest possible distribution across Europe – the top species considered were Tawny Owl, Common Buzzard and Common Kestrel. Some advantages and disadvantages of each were discussed and it was recognised that selecting species could be problematic if some research groups were already focusing on particular species. It was suggested that Peregrine and Eagle Owl be added to the list of possible focal species.
- In terms of focal contaminants, and following prioritization carried out in Thessaloniki in February 2019, it was agreed that second generation anti-coagulant rodenticides (SGARs) and heavy metals (mercury and lead) were the highest priority/most suitable for the proof of concept work, but that Persistent Organic Pollutants (POPs) might also be considered. Tissue samples should be chosen to be appropriate for measuring these contaminant types (and therefore might need to focus on carcasses – e.g. liver samples; and blood – sampling live birds).
- The choice of sample types was seen as possibly problematic in terms of use of carcasses (that may not be representative of the population of a species as a whole) and live sampling for blood (the need for complex training/licensing).
- We also discussed some possible biases/problematic sources of variation that could occur if basing the study on carcasses – for example the problems of variation caused by age (but less by sex) due to variable length of exposure time to contaminants and differential movement patterns etc.
- It was agreed that any proof of concept study without additional funding should make best use of existing samples already in storage and recent samples already analysed.
- It was agreed that the most pragmatic way forward was to send a questionnaire to all known labs already involved in contaminants work to ask them: (i) what samples they already have available/analysed for focal species and focal contaminant types; and (ii) whether they could find capacity/use existing resources to analyze some samples for the ERBfacility study without extra funding being found. Some representatives of labs that were present at the workshop pledged that they could analyze some samples for free as part of a collaborative study, which was a favourable start.

- It was agreed also to return to the results of the questionnaire study of collections carried out by a WG3 STSM to assess the extent to which samples of appropriate species are already held in collections (and to ask further questions of collections if not covered adequately by the questionnaire study).
- It was agreed that final selection of species and focal contaminants would be based on the findings of questionnaires to active labs and collections (i.e. would depend on what analyses and samples were already available, and what analytical capacity labs were able to offer).
- Finally it was agreed that a proof of concept study based on either: (a) samples already in collections/analyzed; or (b) carcasses collected from the field; would not test the whole structure of any future pan-European ERSamP in terms of potential for collection of field samples but that without additional funding it was necessary to start with a scale of study that was likely to be manageable. It was agreed that other forms of field sample collection (e.g. through blood sampling) might be added in a second phase of the study if an appropriate level of resource could be found.

A number of workshop participants took away specific actions to develop the next planning stages of the proof of concept study and subsequently a further workshop was organised in Stirling, Scotland in April 2019 to develop the proof of concept planning further.

Workshop Topic 4 Capacity building in the field arena – actor types and their needs

The [introductory presentation by Chris Wernham](#) explained the work plan for WG4 Field Arena and that the next phase of work was moving on to think about how to build capacity in different types of field participants ('actors') in support of any future ERSamP and the proof of concept study (see box below).

WG4 – Capacity Building (and developing guidance)

Thinking about the different sorts of field participants and answering some questions

What sort of people fit into the different categories?

What are their motivations for doing what they do in the field?

How are they currently coordinated – how do we reach them to encourage them to participate?

What guidance and training will they require to take a more active role in ERSamP?

What feedback will they require to keep them engaged?

Which key people and organisations must we involve in future workshops and work areas?



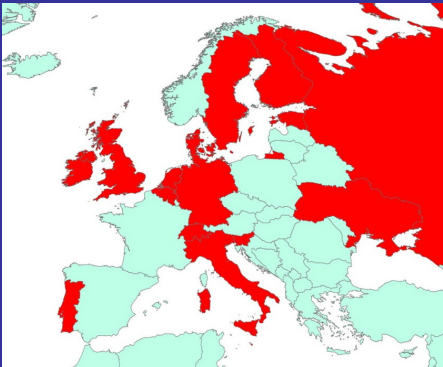
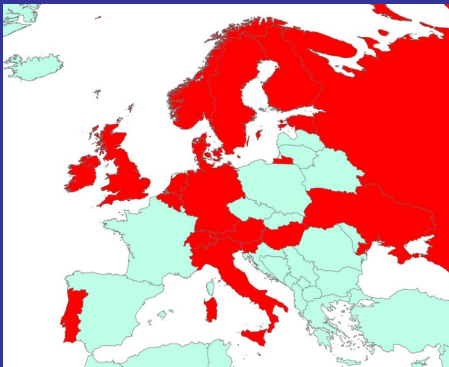
Abbie Maiden (STSM holder) gave a [presentation on the review of ringing effort across Europe](#) that she had been progressing through a questionnaire survey to all EURING-affiliated ringing schemes. The questionnaire was designed to assess (i) the capacity of ringers across Europe to collect sample

material; (ii) the constraints to collecting samples and building capacity further; and (iii) to what extent best practice guidance for ringers is already available. At the time of the workshop, only 13 responses had been received from 46 schemes to which the questionnaire had been distributed. Of 12 schemes that had replied to the specific question about collection of raptor samples, 11 said that they collected some raptor sample material. The following workshop discussion focused on how to maximise the response rate from the rest of the ringing schemes.

Al Vrezec also gave a short [presentation on the previous Derlink *et al.* EURAPMON review¹ of raptor monitoring activity across Europe](#), drawing out what this previous review tells us about existing capacity to monitor raptors and (potentially) collect sample material across Europe. Al showed the known monitoring coverage of some of the species previously suggested as focal species for the proof of concept study: Common Buzzard and Common Kestrel; Tawny Owl; and a combination of Barn Owl and Long-eared Owl (two species with similar ecological niches that would together extend across much of Europe (see boxes below). A number of criteria were suggested for consideration when selecting the most suitable focal species for the pan-European proof of concept study, as follows:

1. Europe-wide species distribution (breeding)
2. Good contaminant indicator species
3. Easy access to sample materials (different and appropriate sample matrices)
4. Easy access to the number of samples needed
5. Well-defined species origins (ideally resident species)
6. Good access to high quality contextual data (good population monitoring coverage)

Potential priority species

 <p style="color: yellow; font-weight: bold; margin: 0;"><i>Buteo buteo</i></p> <p style="margin: 0;">No. schemes: 50 No. countries: 16 Breeding range coverage: 38 %</p>	 <p style="color: yellow; font-weight: bold; margin: 0;"><i>Falco tinnunculus</i></p> <p style="margin: 0;">No. schemes: 52 No. countries: 19 Breeding range coverage: 43 %</p>
	

¹ Derlink *et al.* (2018) A review of raptor and owl monitoring activity across Europe: its implications for capacity building towards pan-European monitoring. Bird Study 65 (Supplement 1): S4-S20.

Potential priority species



Strix aluco

No. schemes: 26
No. countries: 13
B. range coverage: 32 %



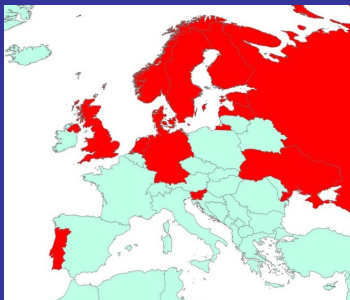
Tyto alba

No. schemes: 16
No. countries: 8
B. range coverage: 21 %



Asio otus

No. schemes: 24
No. countries: 14
B. range coverage: 33 %



The participants then split into break-out groups to discuss the types of actors that might get involved in three types of sample collection: (1) collecting carcasses; (2) collecting blood samples; and (3) collecting population monitoring data.

Each group discussed the questions posed at the start of the session:

- What types of actors could be involved?
- What would be their motivations - for fieldwork in general and for getting involved in the ERB Facility sampling programme?
- How are they coordinated currently / how can we reach them to encourage them to take part?
- What guidance, training and feedback would they need?

Some results from the discussions are summarised in the box below and more detail is provided in a supplementary spreadsheet: [Summary of actors discussion in Florence](#). These motivations and specific needs must be considered carefully and will be used to further shape and plan capacity building and training actions in the second half of the ERB Facility COST Action work programme, and to inform guidance development needs. A workshop in autumn 2019 is proposed to discuss and plan capacity building and training actions in more detail.



ACTORS IN ERSaMP - SUMMARY



TYPES OF PEOPLE

- ✓ Vets
- ✓ Trained ringers
- ✓ Nest monitoring volunteers
- ✓ Professional ecologists
- ✓ Wildlife rehab centres
- ✓ Road ecology network
- ✓ Public citizens
- ✓ Hunters
- ✓ Police / rangers / authorities

MOTIVATIONS

- ✓ Professional job
- ✓ Fun / hobby
- ✓ Commitment to conservation
- ✓ Passion for raptors / wildlife
- ✓ Career experience
- ✓ Contribute to something useful
- ✓ Interest in science
- ✓ Challenge / excitement of finding new nest sites

WHAT DO THEY NEED / NOT NEED

- ✓ Specific guidance & protocols
- ✓ Regular feedback suitable for the specific audience
- ✓ Accreditation, certificate of participation or rewards
- ✓ Funding for equipment or travel
- ✓ Acknowledgement or co-authorship of publications
- X Don't want too much paperwork
- X Don't want to duplicate effort (e.g. data submission)



Workshop conclusions and next steps

The final workshop session provided the chance for participants to help shape the WG4 work programme for Grant Period 3. Agreed next steps were:

An autumn workshop on capacity building and training – subject to budget approval, this would be organised by WG4 in Slovenia. It was considered that a week would be required to complete the planning of best practice guidance and advice, review existing capacity building expertise and activity in Europe, and discuss and plan training activities to take place (as planned) during Grant Period 4. It was agreed that the workshop would require additional participants who had particular expertise and experience in capacity building and training (e.g. possibilities were suggested from WWF, BirdLife, BTO and the vulture poisoning network in Spain were suggested for invitation).

Subject to budget approval, 3 or 4 Short-Term Scientific Missions could be available for WG4 during Grant Period 3. All participants were asked to think about recommendations for applicants and hosts for these missions. Current thinking was that:

- One of these missions would be made available to review existing capacity building and training and develop guidance on future capacity building and training (as well as helping to plan the Slovenia workshop).
- Two missions would be available to work on further species- or group-specific best practice guidance documents (following Luci Michel's work on falcons). One mission might be used to develop such guidance for vultures, and the other for guidance for the focal species selected for the Proof of Concept Study.
- A fourth mission might be offered to plan and coordinate field data collection and those taking part in collecting for the Proof of Concept study, but this would depend on how quickly the study could be planned and implemented and what work was then needed.

It was agreed that it was essential to plan the Proof of Concept study in more detail as soon as possible, so that WG4 could plan the supporting functions for which it is responsible as soon as possible too.



Attendees and acknowledgements

The workshop in Florence was attended in person by 22 participants representing 11 countries (Finland, Germany, Greece, Israel, Italy, Portugal, Slovenia, Spain, Sweden, Turkey and UK).

Development and running of the scientific programme was led by Chris Wernham (WG4 Lead) and the other WG4 Team Members (Arianna Aradis , Yael Choresch, Rui Lourenço and Al Vrezec). We are grateful to all the presenters and other workshop participants who gave freely of their time, skills and experiences during workshop discussions: Tamer Albayrak, Maria Dulsat Masvidal, Silvia Espín, Antonio García-Fernández, Pilar Gómez-Ramírez, Ulf Johansson, Christina Kassara, Oliver Krone, Abigail Maiden, Rafael Mateo, Lucie Michel, David Noble, Joško Račnik, Pablo Sánchez Virosta, Anastasios Saratsis, Jari Valkama and Stavros Xirouchakis.

We are also very grateful to Fausto Barbagli and other staff of the Museo di Storia Naturale 'La Specola' for all the local organisation of the meetings in Florence.

Appendix 1 – Workshop Programme

PROGRAMME

Thursday 7 March		
14:00 – 14:30	Introduction to Workshop and plan for the sessions	Chris Wernham
14:30 – 14:45	Structure of ERSamP, including how the guidance fits in (generic and species-specific). With time for discussion	Chris Wernham & Rui Lourenço
14:45 -15:00	Constraints already identified	Rui Lourenço & Maria Dulsat Masvidal
15:00 – 16:00	Break-out groups to discuss the framework and in particular solutions to constraints (45 minutes + 15 minutes feedback)	Led by Rui Lourenço & Maria Dulsat Masvidal
16:00 – 17:00	Break-out groups to discuss any extra work required on generic guidance – contextual data	Introduced by Chris Wernham
17:00	END OF DAY 1	
19:30	Meet for dinner in the city	
Friday 8 March		
09:00 – 09:30	Introduction to the day and consideration of field actors (and collection of different sample types/contextual data types)	Chris Wernham
09:30 – 09:45	Example of one group of actors (ringers) – what we know already or will know from the ringing review	Abbie Maiden
09:45 – 10:00	What the Derlink review tells us about the availability of other field actors across Europe	Al Vrezec
10:00 – 10:15	Moving towards proof of concept study(ies) for testing the collection of new data	Rafael Mateo (tbc)
10:15 – 11:00	Plenary discussion and introduction to break-out groups	Led by Chris Wernham
11:00 – 11:15	SHORT COMFORT BREAK	
11:15 – 12:00	Break-out groups to work through scenarios focusing on different groups of actors – 3 possible groups (carcass collection/blood sampling/collection of population and demographic data) – who would need to be involved and how would we achieve it?	
12:00 – 12:30	Feedback from Groups	
12:30 – 14:00	LUNCH BREAK	
14:00 – 16:00	Further discussion of work for GP3 – STSMs; Slovenia meeting objectives and programme; proof of concept study development	Led by Chris Wernham & Al Vrezec
16:00 – 16:30	SUMMING UP & CLOSE OF WORKSHOP	Chris Wernham

Appendix 2

LIST OF PARTICIPANTS

Name	Affiliation	Country
Tamer Albayrak	Department of Biology, Mehmet Akif Ersoy University	Turkey
Arianna Aradis	ISPRA, Rome	Italy
Yael Choresh	Shamir Research Institute, University of Haifa	Israel
Maria Dulsat Masvidal	IDAEA-CSIC, Barcelona	Spain
Silvia Espín	University of Murcia	Spain
Antonio García-Fernández	University of Murcia	Spain
Pilar Gómez-Ramírez	University of Murcia	Spain
Ulf Johansson	NRM	Sweden
Christina Kassara	University of Patras	Greece
Oliver Krone	Leibniz Institute for Zoo & Wildlife Research	Germany
Rui Lourenço	Universidade de Evora	Portugal
Abigail Maiden	Northern Ireland Raptor Study Group	Northern Ireland (UK)
Rafael Mateo	Instituto de Investigacion en Recursos Cinegeticos (IREC), Ciudad Real	Spain
Lucie Michel	Justus-Liebig University, Giessen	Germany
David Noble	British Trust for Ornithology (BTO), Thetford, UK	UK
Joško Račnik	Veterinary Faculty, Ljubljana	Slovenia
Pablo Sánchez Virosta	University of Turku / University of Murcia	Finland / Spain
Anastasios Saratsis	Veterinary Research Institute, Thessaloniki	Greece
Jari Valkama	Finnish Museum of Natural History, University of Helsinki	Finland
Al Vrezec	National Institute of Biology, Ljubljana	Slovenia
Chris Wernham	BTO Scotland, Stirling	Scotland (UK)
Stavros Xirouchakis	Natural History Museum / University of Crete	Greece

Appendix 3 – List of supplementary information available

Presentations

[Introduction to the workshop and ERSamP – Chris Wernham](#)

[Progress with constraints and solutions review – Maria Dulsat Masvidal](#)

[Proposed ERB Facility Proof of Concept Study – Rafa Mateo](#)

[Review of ringing effort across Europe – Abigail Maiden](#)

[EURAPMON review of raptor monitoring activity across Europe – Al Vrezec](#)

Other related outputs

[Summary of actors discussion in Florence \(Excel spreadsheet\)](#)