

TOWARDS A EUROPEAN RAPTOR SPECIMEN BANK IN SUPPORT OF CONTAMINANT RESEARCH AND MONITORING FOR BETTER CHEMICALS MANAGEMENT

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1. A EUROPEAN RAPTOR BIOMONITORING FACILITY

Environmental contaminants impose € multi-billion costs on human and wildlife health. The COST ACTION 'European Raptor Biomonitoring Facility' (ERBFacility) seeks to reduce these costs, by meeting pan-European needs for:

- more reliable risk assessment of compounds;
- enhanced effectiveness evaluation of chemicals laws;
- early warning of emerging contaminant problems.

ERBFacility addresses chemicals regulations relating to priority substances (REACH), plant protection products, biocides, veterinary products and heavy metals.

Using raptors as particularly appropriate sentinels for persistent, bioaccumulative and toxic (PBT) compounds, ERBFacility will help answer the questions:

- What are the environmental risks of specific chemicals?
- Is legislation effective in reducing environmental exposure to contaminants in Europe?
- And are there emerging contaminant problems needing remedial action?

ERBFacility involves ecotoxicologists, curators and field ornithologists from 26 European countries and in particular favours participation of early career researchers.

4. PROGRESS TOWARDS THE ERSpeB

Review of Raptor Collections in Europe

A recent review of c.120 raptor collections in Europe found high potential for development of the ERSpeB. Many thousands of raptor specimens are received annually at museums, specimen banks and other collections across Europe. Most of these specimens are stored as frozen raptor samples, and are of potential value for contaminant monitoring.

Addressing legal constraints

Work has been carried out to address legal constraints to shipping of samples – from the field to collections, between collections, and from collections to analytical laboratories. These constraints relate to: (a) the Convention on Trade in Endangered Species (CITES); (b) the Nagoya Protocol to the Convention on Biological Diversity; (c) transport of (hazardous) biological materials. Work has identified good practice for shipping of samples and identified measures that may be taken to further facilitate shipping, such as training and guidance documents.

6. SYNERGIES WITH LIFE APEX

Simultaneously, the project LIFE APEX is demonstrating the systematic use of contaminant data from raptors (and other apex predators) for chemicals management.

Applications include:

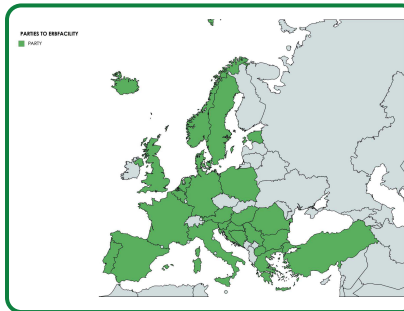
- prioritisation of substances for PBT/vPvB (persistent, bio-accumulative, toxic / very persistent very bio-accumulative) assessments
- identifying predominant chemical mixtures in biota, and
- assessing the effectiveness of EU chemicals risk management measures.

Together, ERBFacility and LIFE APEX offer considerable potential to reduce contaminant risks to human and wildlife health in Europe.

5. FUTURE WORK ON THE ERSpeB

Over the next couple of years, further work to create the ERSpeB will include:

- prioritising species, tissue matrices and compounds for collection;
- addressing legal and other constraints;
- enhancing standards and protocols for gathering, processing and storing samples;
- developing policy on access to samples;
- digital unification of raptor collections across Europe (in collaboration with DISSCO); and
- proof of concept work.



2. THE THREE COMPONENTS OF ERBFacility

ERBFacility will consist of three complementary components:

- a **European Raptor Biomonitoring Scheme** (ERBioMS) which specifies the priority compounds for biomonitoring, the species and tissue matrices to be used, the analytical methods and standards to be applied, and the modalities for integration of results in EU assessments.
- a distributed **European Raptor Specimen Bank** (ERSpeB) for contaminant monitoring, which involves the digital unification of raptor collections, enhances standards and protocols for gathering, processing and storage of samples destined for biomonitoring, stimulates expansion of relevant collections and facilitates access to and shipping of samples;
- a **European Raptor Sampling Programme** (ERSaMP) which coordinates the supply of the required raptor samples from the field to collections, together with relevant contextual field data (e.g. reproductive data)

3. A NOVEL ROLE FOR COLLECTIONS

Collections, in natural history museums, environmental specimen banks, and research collections, have a pivotal role to play, in collecting and storing suitable specimens and making samples available for analysis. This may prove to be an important and expanding societal role for collections, helping to reduce the high costs of chemical impacts on human and wildlife health.



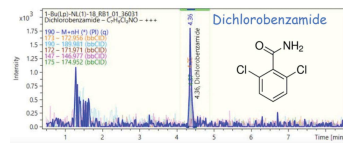
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7. Initial LIFE APEX findings

Tier 1 samples: Common buzzard *Buteo buteo* (n=12), otter *Lutra lutra* (n=20), harbour seal *Phoca vitulina* (n=10), grey seal *Halichoerus grypus* (n=1), harbour porpoise *Phocoena phocoena* (n=5), common bream *Abramis brama* (n=6), common roach *Rutilus rutilus* (n=5), European eelpout *Zoarces viviparus* (n=3), herring *Clupea harengus* (n=3), European herring gull *Larus argentatus* eggs (n=2) from: UK, Netherlands, Germany, Sweden

Substances detected: **hundreds of legacy and emerging contaminants and their biotransformation products** including:

- plant protection products
- surfactants
- pharmaceuticals
- industrial chemicals
- PCBs
- PAHs
- OCPs
- antipsychotic and antidepressant drugs



PARTICIPATE IN ERBFacility

Participation in ERBFacility is open to all interested researchers and practitioners in the analysis, collections and field arenas in accordance with the COST guidelines and rules on participation: <http://www.cost.eu/participate>

Bird curators interested to participate or seeking further information are encouraged to email paola.movalli@naturalis.nl.

MORE INFORMATION

www.erbfacility.eu
http://www.cost.eu/COST_Actions/ca/CA16224
www.lifeapex.eu

ACKNOWLEDGEMENTS

ERBFacility COST Action (CA16224) is supported by COST (European Cooperation in Science and Technology) and funded by the Horizon2020 Framework Programme of the European Union

LIFE APEX is funded by the European Union through grant LIFE17 ENV/SK/000355