Urban Falcons

An STSM dedicated to to explore the potential of sample availability and

review protocols to inform best practice guidance for sample and collection for Peregrine and other falcons

Overview

1. **Introduction**
   - Personal introduction
   - History and status of urban peregrines today
   - Why increasing the knowledge about urban peregrines and how?
2. **Proceedings**
   - Map of websites, nestboxes, contact persons
   - Literature overview
   - Questionnaire
3. **Outlook and next steps**
   - Proposals for best practice guidlines
   - Knwoledge exchange: personal communication about breeding site and possible contributors

Introduction

STSM Holder

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Ornis italica

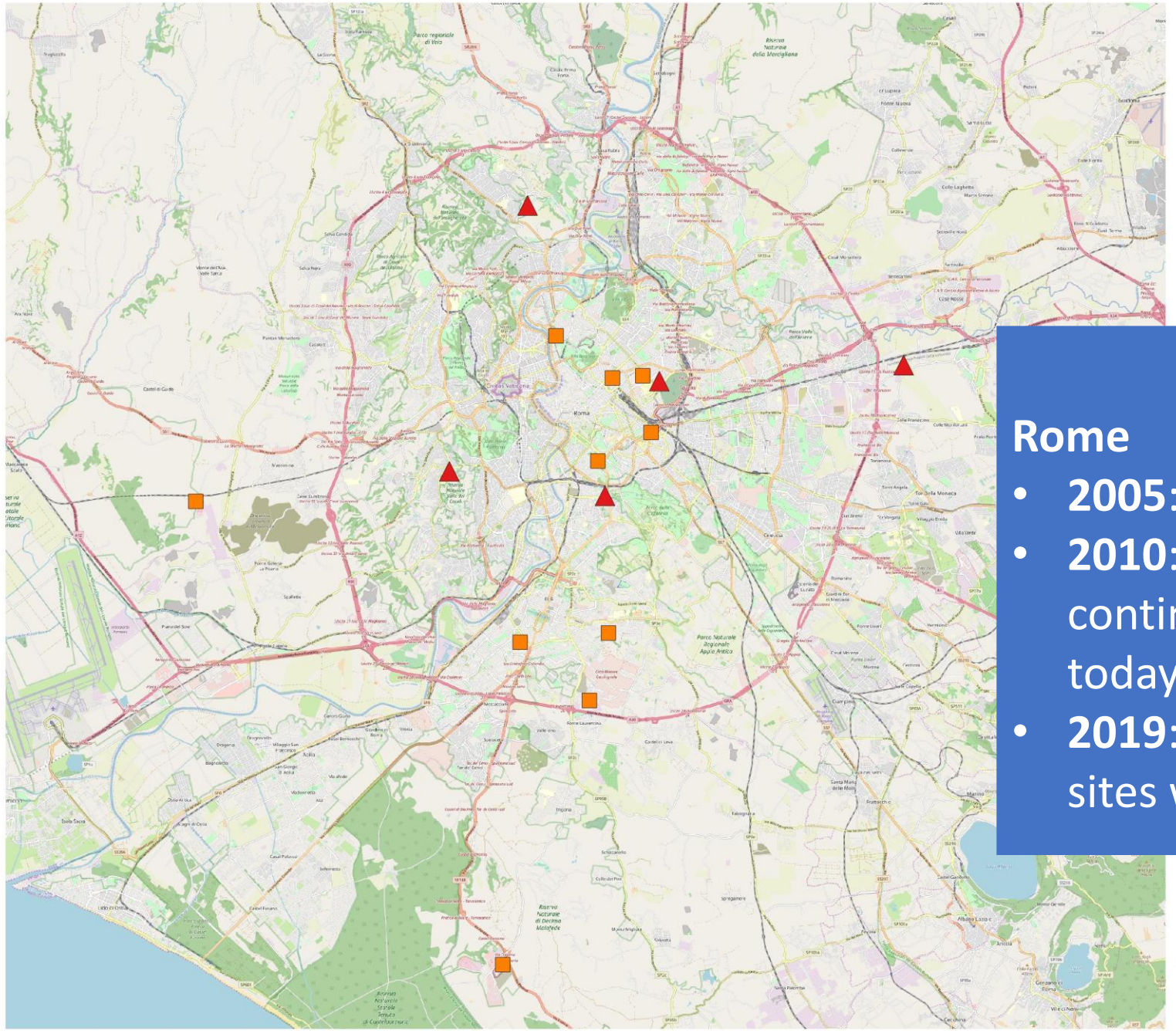
BIRDCAM.IT :: the italian birdcam website ::

Peregrines in cities... on the rise

Madrid
2018: 12 Pairs

Frankfurt
1982: first couple
2002: 5 Breeding sites
2012: 11 Breedingsites with 5 Pairs
2018: 13 Breeding sites

London
2001: 2-3 pairs
2014: 30+ pairs
2018: 48 pairs



Rome

- **2005**: first couple, aria e vento
- **2010**: 4 pairs on webcam continiously monitored until today
- **2019**: 14 known + 6 Breeding sites within the area of Rome

People love Peregrines...

- Peregrines as flag species
- Chicks naming competitions
- Public ringing
- Crowd funded webcams
- Active communites

why and how increasing the knowledge about city peregrines?

Advantages of City Peregrines for research

- public interest
- nests easy to access
- common methods to study them
- convenient spread over latitudes (contaminant gradients)
- Falcon contamination can be related to urban living quality?
- migratory and resident birds as prey
- long-term following up of individual life history (webcams)

Limitations that we face today

- little communication between groups managing peregrines
- low sampling experience
- no protocols
- no specific interest in ecotoxicology

Peregrines as biomonitors for pollution in cities

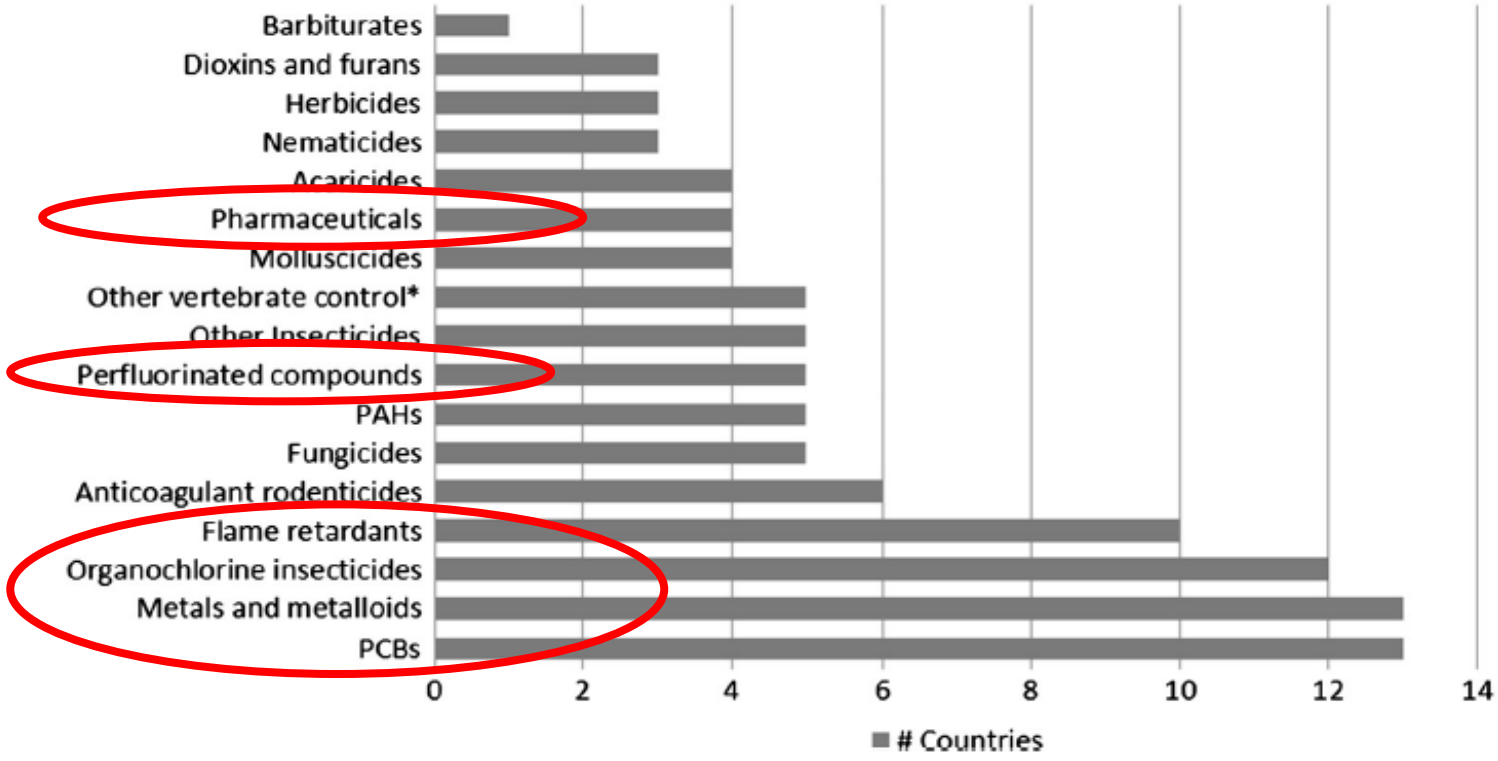
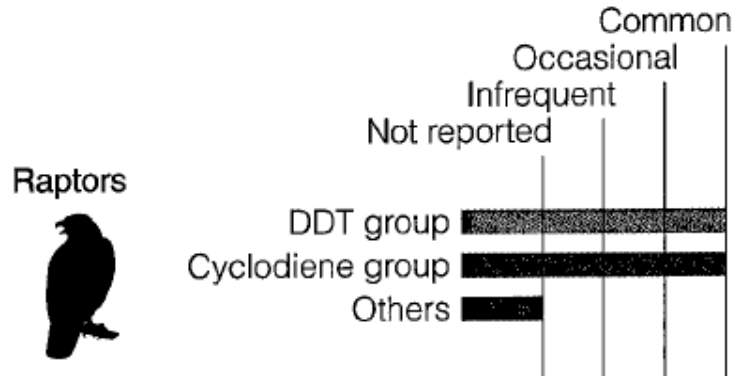


Fig. 2. Number of countries in which monitoring is carried out for different classes of compounds.

Gómez-Ramírez, P., Shore, R. F., Van Den Brink, N. W., Van Hattum, B., Bustnes, J. O., Duke, G., ... & Krone, O. (2014). An overview of existing raptor contaminant monitoring activities in Europe. Environment international, 67, 12-21.

What we don't know: pollution gases including urban dust.



Relative importance of health effects caused by chlorinated hydrocarbon insecticides in freeliving raptors. (taken from Friends & Franson 1999)

Main contaminants

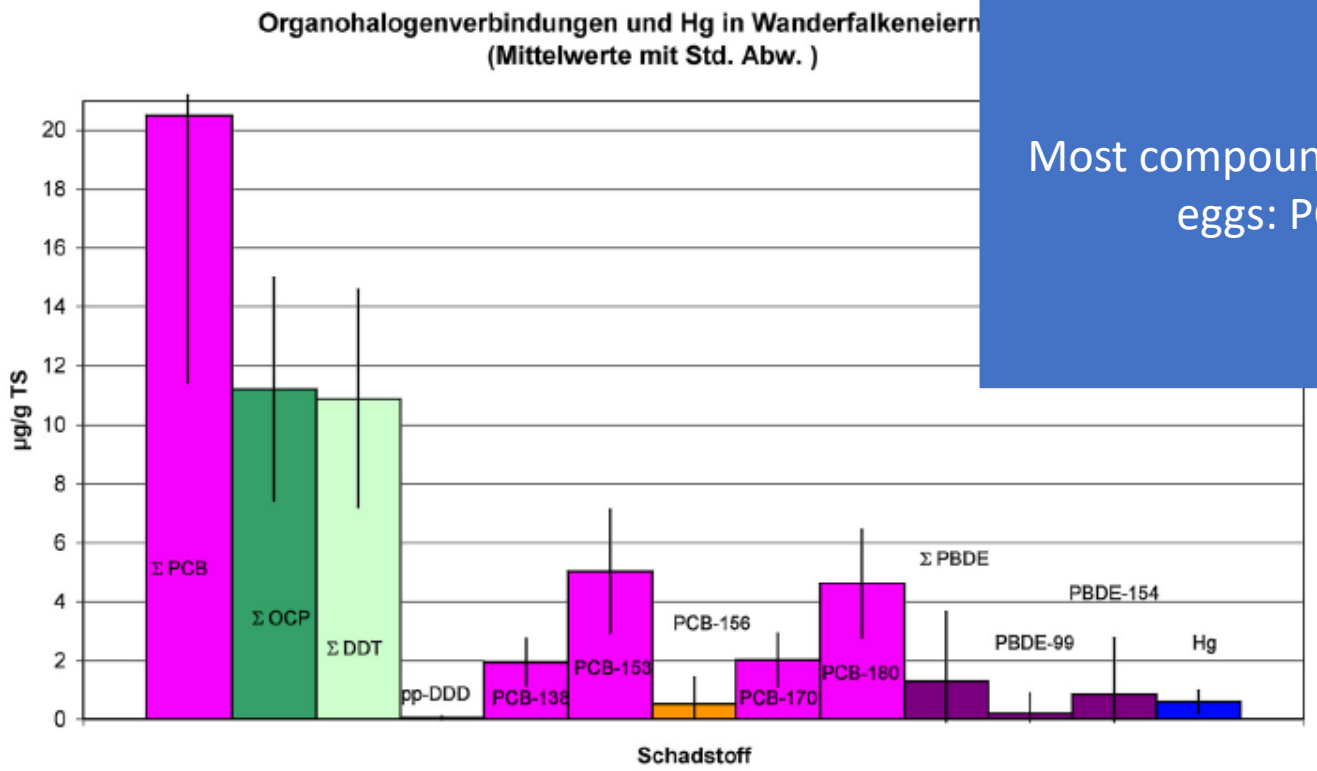
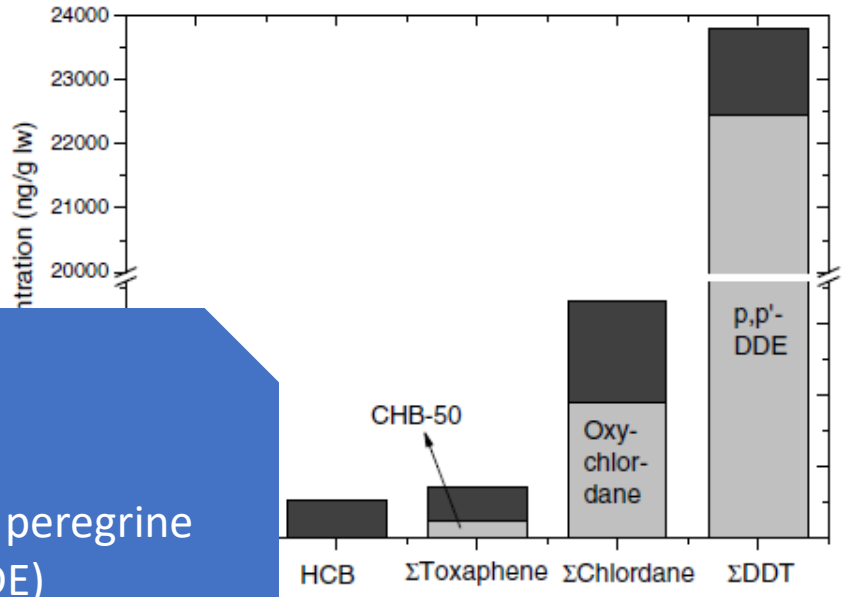


Figure 8. Median concentrations (ng/g lw) of organochlorine pesticide groups and their main individual compounds in peregrine falcon eggs from South Greenland (1986-2014).



Most compounds found in peregrine eggs: PCB, DDT (DDE)

ller, S., Riget, F. F., Bossi, R., & Sørensen, P. B. d time trends of persistent organic pollutants and their effects on eggs of peregrine falcons (Falco peregrinus) from South Greenland.

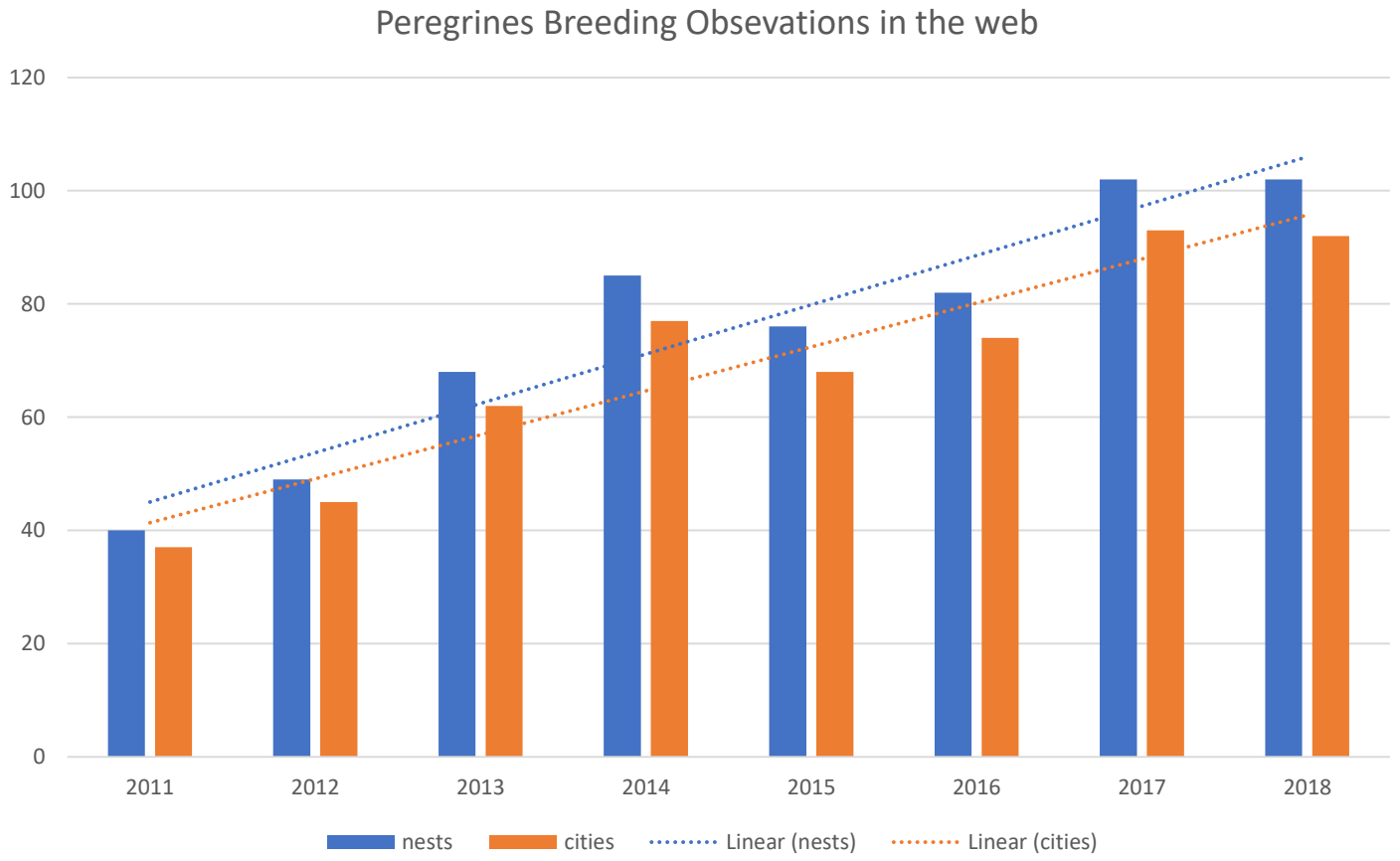
Mostly in eggs,
but also in plasma of nestlings

von der Trenck, K. T., Schilling, F., & Schmidt, D. (2007). Bioindikation mit Wanderfalken. Umweltwissenschaften und Schadstoff-Forschung, 19(2), 75-82.

STSM points of interest

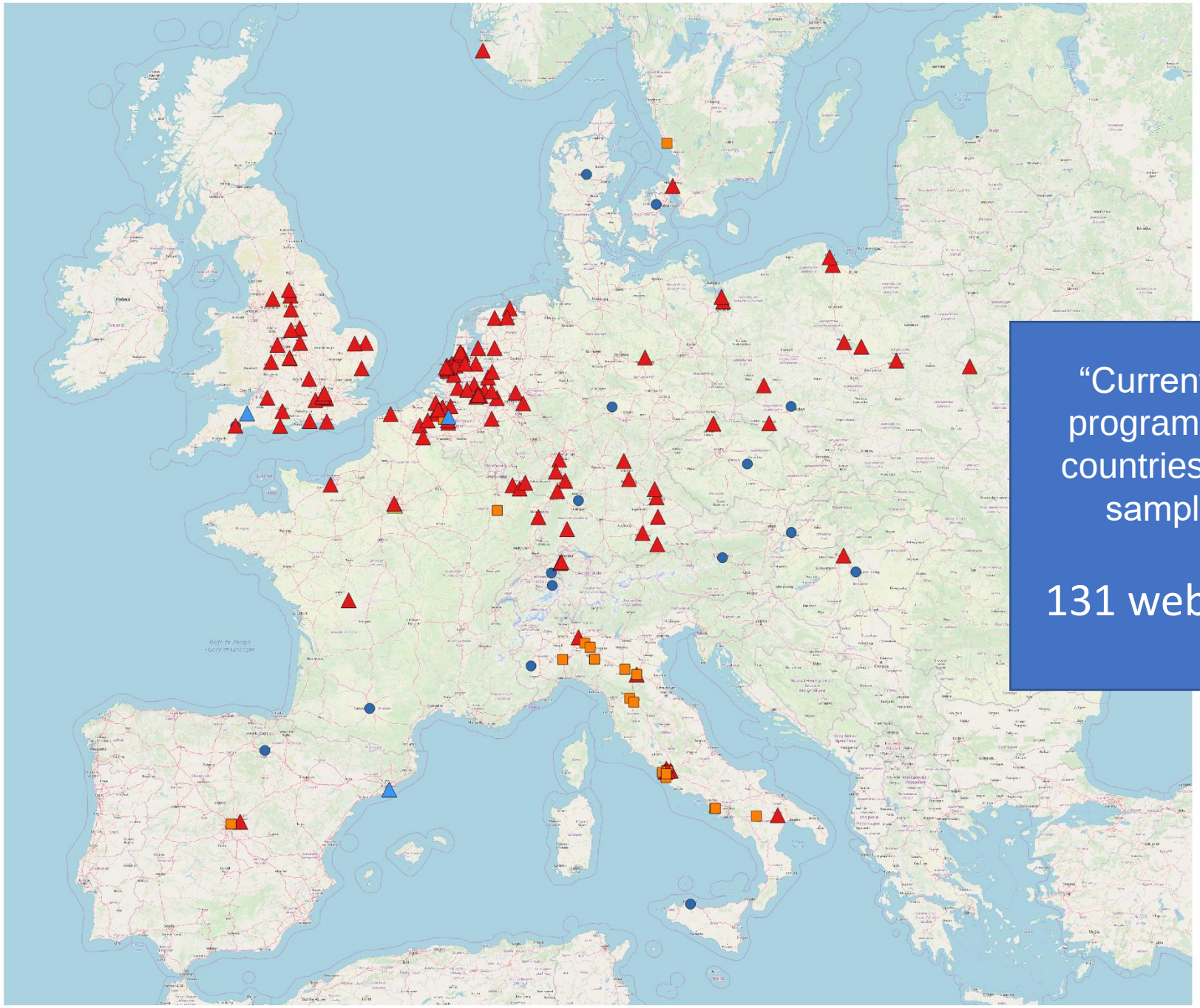
- explore the potential of using urban falcons for contaminant monitoring
- review sampling protocolls to provide best practice guide
- determine focus contaminants
- create a network of interested groups

Proceedings



but number of pairs is much higher (4-5 times higher)

Source: https://sites.google.com/site/nestkalenders/home/slechtvalken



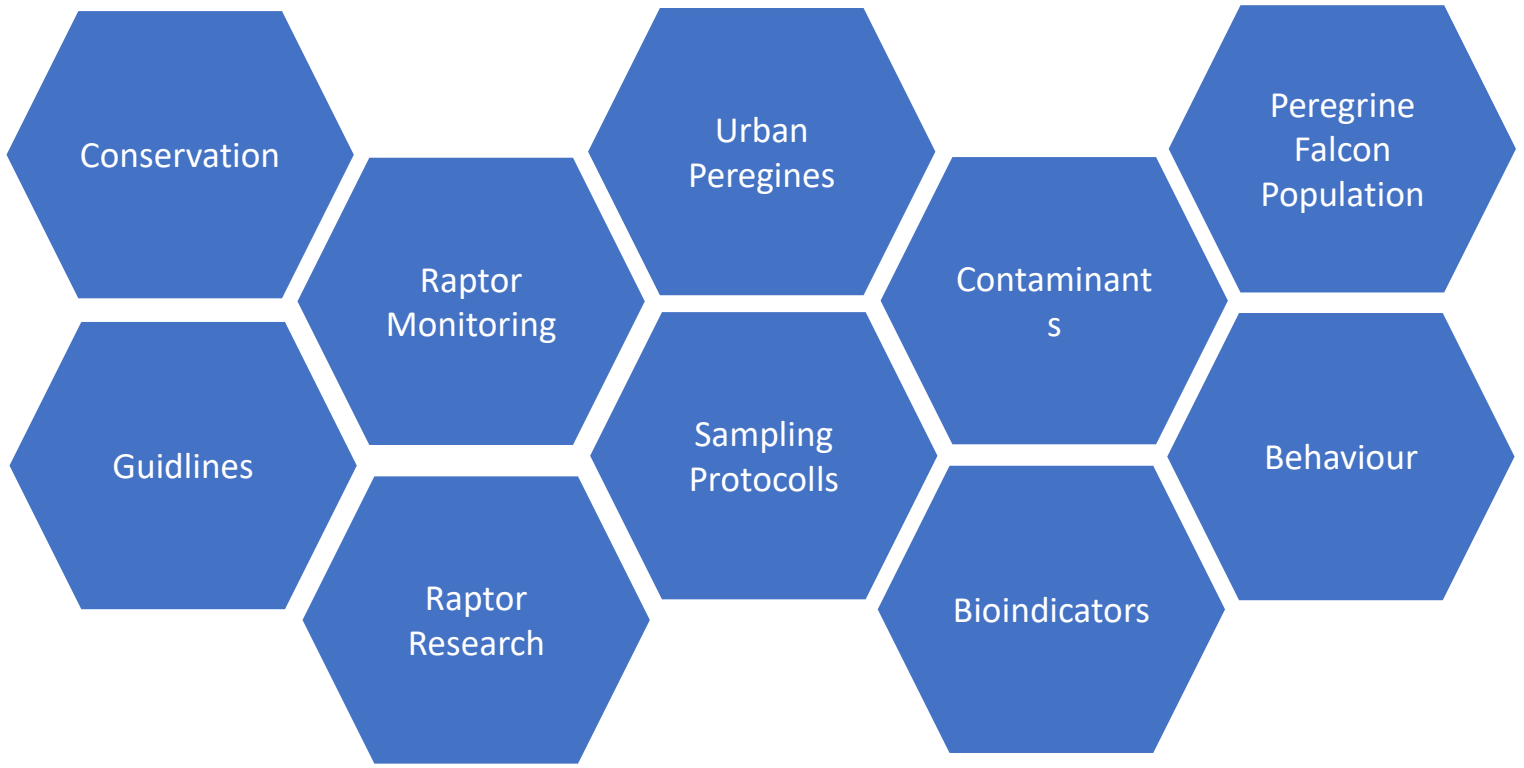
"Currently, some 182 monitoring programmes across 33 European countries collect a variety of raptor samples." (Espin et al. 2016)

131 webcams could add up to that

wich data can we extract?

year	n. nests	n. cities	total_layed	mean clutch size	total_hatched	mean hatchlings/nest	hatching success [%]
2011	40	37	154	3.9	125	3.1	81
2012	49	45	184	3.8	152	3.1	83
2013	68	62	232	3.4	171	2.5	74
2014	85	77	320	3.8	232	2.7	73
2015	76	68	286	3.8	204	2.7	71
2016	82	74	307	3.7	236	2.9	77
2017	102	93	368	3.6	293	2.9	80
2018	102	92	360	3.5	283	2.8	79

Literature overview



N studies	N Protocolls	N studies that contribute to sampling improvement	N method part with valuable information
38	6	11	16

Considerations for peregrine protocols

- Public can be witness of the sampling?
- Agree what material what biological sample should be taken and preserved
- List of obtained samples should be reported
- Instructions how to store
- Database will be available for those who want to analyse samples

Goals of the questionnaire

How many accessible peregrine nest are in European cities?

Who is the responsible for monitoring?

What biological sample are already available?

What more can be obtained?

Methods for sampling used?

Distribute our guidelines!

Outlook and next steps

Proposals for Guidlines for

- Clear terminology (Glossary with Pictures)
- Provide checklist:
  - ✓Planning – Organisation prior to sampling
  - ✓Material – List of equipment
  - ✓Execution – Stepwise instructions of sampling
- Short info about contaminant: synonyms, tradenames, relative importance
- Pictures of correct handling
- Suggested Timing (schedule, when to take wich sample?)

Proposals for best practice

- Provide database on website
- Rules of minimal disturbance at approaching
- Provide local coordinator that receives samples, collects and stores them
- Provide pre-printed Stickers to lable data containers
- Provide pre-printed data sheets

- Agreement on focus contaminants
- Knwoledge exchange: personal communication about breeding sites and possible contributors