26th Mustelid Colloquium

28-31 August 2008

Budapest, Hungary

BOOK OF ABSTRACTS

http://mustelid2008.elte.hu

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DETAILED PROGRAM

THURSDAY, 28 AUGUST 2008

15:00-18:00 **REGISTRATION (Eötvös Loránd University)**

19:00-21:00 **WELCOME RECEPTION (Hungarian Natural History Museum)**

GUIDED TOUR in the museum's exhibition „The world of carnivores"

FRIDAY, 29 AUGUST, 2008

08:30-10:00 **REGISTRATION (Eötvös Loránd University)**

09:00-09:10 **OPENING REMARKS**

09:10-09:40 **THE HISTORY OF THE MUSTELID COLLOQUIUM (1982-2008)**

Sim Broekhuizen

09:40-11:00 **SESSION 1: METHODOLOGY**

Chair: Hans-Heinrich Krüger

09:40-10:10 **Session Opening presentation**:
Using remote cameras to monitor otters

Paul Yoxon

10:10-10:30 **Methods for measuring foraging success of Eurasian otter (*Lutra lutra*) in a shallow river**

Lukáš Šimek

10:30-11.50 **Monitoring small carnivores in France: a simple method using sightings of national wildlife protection officers along roads**

Sandrine Ruette, Michel Albaret and Jean-Michel Vandel

11:50-11:20 **Coffee break**

11:20-12:30 **SESSION 2: AT THE LEVEL OF THE MOLECULES**

Chair: Izabela Wierzbowska

11:20-11:50 **Session Opening presentation :**

Real-time PCR techniques for species identification and sex-typing in mustelids

Catherine O'Reilly, Jacinta Mullins and Peter Turner

11:50-12:10 **A census of pine marten (*Martes martes*) populations in the south-east of Ireland using genetic analysis of hair and faeces**

Jacinta Mullins, Mark Statham, Tom Roche, Peter Turner and Catherina O'Reilly

12:10-12:30 **Population structure of the eurasian otter (*Lutra lutra*) in the UK**
Geoffrey Hobbs

12:30-14:00 **Lunch**

14:00-16:00 **SESSION 3: MORPHOLOGY, PHYSIOLOGY, BIOGEOGRAPHY**
Chair: Lukáš Šimek

14:00-14:20 **First report of fossil mustelids from the Paleogene of Hungary**
Márton Rabi

14:20-14:40 **Historical biogeography of the Stone marten (*Martes foina*) in the Carpathian Basin: an overview**
Mária Tóth and Márton Rabi

14:40-15:00 **Body weight of mustelid species from Transylvania – data on animals hunted between 1964-1995**
Zsolt Hegyeli and Attila Kecskés

15:00-15:20 **Coffee break**

15:20-15:40 **Body tepmerature and activity in Eurasian otters (*Lutra lutra*)**
Hans-Heinrich Krüger

15:40-16:00 **The presence of different parasites in Stone martens (*Martes foina*) living in urban areas**
Emese Szőcs, Mónika Gyurkovszky and Miklós Heltai

16:00-17:00 **POSTER SESSION**

18:00-19:00 **Dinner**

19:00- **ROUNDTABLE DISCUSSIONS, SLIDE AND VIDEO SHOW**

SATURDAY, 30 AUGUST 2008

09:00-10:10 **SESSION 4: BEHAVIOUR AND ECOLOGY 1**
Chair: Morten Elmeros

09:00-09:30 **Session Opening presentation:**
Stone martens (*Martes foina*) as urban adapters
Jan Herr

09:30-09:50 **Has culling affected the behaviour of the Eurasian badger (*Meles meles*) in Ireland**

Carroll Rosario, Leigh Corner and Nicola Marples

09:50-10:10 **Habitat selection of weasel (*Mustela nivalis*) in agriculutural fragmented landscape in Central Italy**

Caterina Magrini, Francesco Maria Angelici, Luigi Boitani, Michele Cento, Emilianoi Manzo and Livia Zapponi

10:10-10:40 **Coffee break**

10:40-11:50 **SESSION 5: BEHAVIOUR AND ECOLOGY 2**

Chair: Jasja Dekker

10:40-11:10 **Age structure of the recovering population of Otters (*Lutra lutra*) in Denmark**

Morten Elmeros, Hans Jørgen Baagøe, Thomas Secher Jensen and Aksel Bo Madsen

11:10-11:30 **Stone martens (*Martes foina*) and cars: factors promoting marten-car associations in the context of marten-related car damage**

Jan Herr, Laurent Schley and Timothy J. Roper

11:30-11:50 **Fox and martens – are they really opportunistic feaders? A case of occurrence of insects in carnivores' diet**

Izabela Wierzbowska, Tomasz Skalski and Maria Eskreys-Wójcik

11:50-13:30 **Lunch**

13:30-15:20 **SESSION 6: CONSERVATION BIOLOGY 1**

Chair: Sandrine Ruette

13:30-14:00 **Session Opening presentation:**

Mustelid ecology and conservation in Portugal: an overview and new challenges

Margarida Santos-Reis

14:00-14:20 **The conservation of the otter in Italy: are absences reliable to predict otter's recovering?**

Carmen Cianfrani, Alexandre H. Hirzel, Gwenaelle Le Lay and Anna Loy

14:20-14:40 **Presentation of the 2nd European mink (*Mustela lutreola*) restoration plan in France (2007-2011)**

Rachel Berzins

14:40-15:00 **Elaboration of conservation programme of endangered European mink (*Mustela lutreola*) in Poland**

Jakub Skorupski

15:00-15:20 **Cardiff University Otter Project: Making good use of road kill**

Elizabeth A. Chadwick and Frederick M. Slater

15:20-15:50 **Coffee break**

15:50-17:10 **SESSION 7: CONSERVATION BIOLOGY 2**

Chair: Elizabeth Chadwick

15:50-16:10 **Badger (*Meles meles*) road mortality in the Netherlands: victim characteristics and effects of mitigation measures**

Jasja D.A. Dekker and Hans Bekker

16:10-16:30 **Pine marten traffic victims in relation to verege features and possible measures to reduce their number**

Gerard J.D.M. Müskens and Sim Broekhuizen

16:30-16:50 **Distribution and conservation of Pine marten (*Martes martes*) in Ireland**

Declan O'Mahony

16.50-17.10 **Alternative radio tracking and biotelemetry methods for small and meso mammals**

András Gubányi, Richárd Wohlfart and Győző Horváth

17:00-17:30 **ANNOUNCEMENT OF STUDENTS'POSTER-COMPETITION**

19:00-22:00 **CLOSING CEREMONY AND BANQUET (Mongolian Barbecue)**

SUNDAY, 31 AUGUST 2008

10:00-12:00 **EXCURSION 1 (FREE, HALF DAY PROGRAM)**

Guided tour to the Budapest ZOO

Zoltán Hanga

8:00-17:00 **EXCURSION 2 (ALL DAY PROGRAM WITH LUNCH)**

„Bouted" tour in the Pilis mountains and visit to the Szentendre Skanzen (Village Museum).

POSTER PRESENTATIONS

METHODOLOGY AND MOLECULAR ANALYSIS

1. **Chemical communication in otters: use as a monitoring tool**
   Eleanor F. Kean, Elizabeth A. Chadwick, Carsten T. Müller, and Fred M. Slater

2. **Morphologic and genetic discrimination between *Martes martes* and *Martes foina* in Italy**
   Vercillo Francesca and Ragni Bernardino

3. **Genetic strucure of Otters (*Lutra lutra*) from two fishpond systems in Hungary**
   József Lanszki

MORPHOLOGY, PHYSIOLOGY, BIOGEOGRAPHY

4. **Geographic variation of cranial morphology of the Japanese weasel (Mustela itatsi)**
   Satoshi Suzuki and Masaharu Motokawa

5. **Craniometric characteristic of European polecat (*Mustela putorius*) and Steppe polecat (*Mustela eversmanni*)**
   Denisa Laffersová

6. **Hystopathological examination of tumours in ferrets and the consequences of delayed angiogenesis**
   Melinda Turáni, Gábor Szemán-Nagy, Gáspár Bánfalvi, Péter Pápai and Bence Tánczos

7. **Occurrence of adrenal gland disfunction in the Hungarian ferret population**
   Melinda Turáni, Gábor Szemán-Nagy, Gáspár Bánfalvi, Péter Pápai and Bence Tánczos

BEHAVIOUR AND ECOLOGY

8. **Activity patterns of the Pine marten (*Martes martes*) in a Mediterranean woodland: evaluation of preliminary data**
   Emiliano Manzo, Paola Bartolommei , Roberto Cozzolino, Gabriele Gentile and Caterina Magrini

9. **Atypical behaviour in a small mustelid –feral ferrets in the U.K**
   Thomas Bodey, Stuart Bearhop and Robbie McDonald

10. **Population size, occurrence and harvest of badgers (*Meles meles*) in southwestern Poland during 2004-2007**
    Lidia Wisniowska

11. **Annual cubbing trends of the Irish Badger (*Meles meles*)**
    Rosario Carroll, Leigh Corner and Nicola Marples

12. **Analysis of urban patches inhabited by Stone marten (*Martes foina*) in Budapest**
Annamária Bárány, Renáta Kis, Edit Koncz and Mária Tóth

13. **Feeding habits and food resource partitioning of sympatric mustelids in Hungary**
József Lanszki, Miklós Heltai and Gabriella L. Széles

14. **The land use and daily activity of urban Stone marten (*Martes foina)* in Krakow, southern Poland**
Maria Eskreys-Wójcik, Izabela Wierzbowska, Andrzej Zalewski and H. Okarma

CONSERVATION BIOLOGY

15. **The conservation and possible hybridisation of the Marbled polecat (*Vormela peregusna ssp. peregusna*)**
Melinda Turáni, Gábor Szemán-Nagy, Gáspár Bánfalvi, Péter Pápai and Bence Tánczos

16. **Otter (*Lutra lutra*) small scale monitoring on Zrmanja River in Croatia**
Gabrijela Medunic Orlic and Milena Sijan

17. **Monitoring and assessment of conservation status for European otter (*Lutra lutra)* in Denmark**
Bjarne Søgaard, Aksel Bo Madsen & Morten Elmeros

18. **EuroNerz e.V. – actions for conservation of the European mink (*Mustela lutreola)***
Christian Seebass and Wolfgang Festl

19. **Diet composition of steppe polecat (Mustela eversmanni) in Northwest-Hungary in winter**
Barnabás Ottlecz and Sándor Faragó

20. **Home range size and habitat selection of steppe polecat (*Mustela eversmanni*) in Northwest-Hungary**
Barnabás Ottlecz and Sándor Faragó

21. **The influence of the Czorsztyn dam reservoir construction on the otter (*Lutra lutra*) diet**
Katarzyna Snigorska, Antoni Amirowicz and Mariola Mroczka

22. **Is it worth doing detailed identification of invertebrate species in carnivores' diet analyses?**
Skalski Tomasz, Izabela Wierzbowska, Maria Jao Santos, Luis Miguel Rosalino, Margarida Santos-Reis and Maria Eskreys-Wójcik

23. **The reintroduction of European mink (*Mustela lutreola* Linné 1761): test of different methods of trophic and social attraction and their effectiveness to induce residence**
Sylvia Noah and Prof. Dr. Rüdiger Schröpfer

24. **Optimizing habitats for weasel populations (common weasel and stoats)**
Helen Müri Wieselnetz

The history of the Mustelid Colloquium

Sim BROEKHUIZEN

Origin and development

It was during the Third International Theriological Congress (Helsinki, August 1982), that Rüdinger Schröpfer (Osnabrück), Günther Heidemann (Kiel) and Sim Broekhuizen (Arnhem) discovered that they were each studying the ecology of free roaming martens, using the same techniques, without knowing about each other's work. As the idea struck Schröpfer and Heidemann that more studies could well be going on in Germany, they decided to organise a meeting of all people studying martens.

Thus, in 1982 the first 'Marder Kolloquium' took place at the University of Osnabrück. The participants all sat around a long table, except for one, who was working on badgers and sat quietly in the back of the room. All participants introduced their work, the aims and the plans for the near future. The presence of Broekhuizen gave the meeting a bit of an 'international' touch. The meeting was fruitful and inspiring, so that it was decided to repeat the Marder Kolloquium the following year in Kiel, and to include the badger in the scope of the colloquium.

As it is not just scientists who are interested in martens and who gather knowledge about the behaviour of martens, interested hunters as well were invited to the second meeting in Kiel, all the more because the meeting was sponsored by the hunters'organisation. There was also a possibility to stay overnight (in the newly built but not yet quite finished home of Günther Heidemann), to enjoy a barbeque and to join in an excursion to the research area of Karl Skirnisson. The latter proved to be most informative and well appreciated, so that the idea of organising an excursion to a research area became part of the concept of the colloquium. The participation however of a considerable number of hunters turned out to lessen the contact between the researchers too much, so that, from then on, hunters as a group were no longer invited. The presence of several Danish colleagues made the colloquium more worth full and international.

In 1984 the third 'Marder Kolloquium' was organised in Munich. Although the scope was now widened to all Mustelids, the name 'Marder-Kolloquium' was maintained for many years more. As previously, on the second day there was an excursion, to the study area of Harald Föhrenbach in alpine National Park Berchtesgaden. The lodging in a log-cabin was a bit primitive, and because the promised sleeping-bags did not arrive it was difficult to decide whether to try to sleep on or under the mattress. The presence of only three mugs for the entire party heightened the informal atmosphere that became so characteristic to the colloquia.

The 4th Marder-Kolloquium was organized by the 'Aktion Fischotterschutz (German Campaign for otter protection) in St. Andreasberg. The number of participants had, in the meantime, increased to 54, so that it became impossible to give everyone the opportunity to personally introduce his or her work and specific area of interest. There were 21 oral presentations and 14 poster presentations, mainly about the otter, and in order to run the organisation of the colloquium as smoothly as possible, the participants' portfolio included a list of ten instructions. This time participants came from four different countries. The excursion went to the otter station in Oderhaus.

As the over-crowded programme in St.Andreasberg stood in the way of intensive discussions and more personal contact, it was decided to divide the colloquium into one day dedicated to *martes*- and *mustela*-species and one day to badger and otter, with in between a day for excursions. This would allow participants to attend only those subjects they were interested in. That is how the 5th Marder-Kolloquium was organized in the Netherlands. It turned out,

however, that very few people made use of the possibility to attend only part of the colloquium and so the participants stayed together as one family. This was enhanced by the choice of location and lodging outside of town. This remained a tradition for a long time.

Evolution in a tradition

In the next 17 years the number of participants fluctuated around 75, depending also on the number of local participants. For the list of locations see table 1. The number of European countries represented increased gradually (fig. 1, former GDR not included as a separate country), but peaked after English was also accepted as conference language (1995) and the colloquium was organized in countries more south-eastern such as Austria (1999: 17) and the Czech Republic (1995: 14; 2007: 18). As from 2007 English became the formal conference language.

In the beginning 'proceedings' of the presentations were not made, because, knowing that papers were to be published, could cause several participants to be reticent in presenting a report about work that had only just started or was still in a very tentative state. However, sometimes proceedings were required as a reciprocation for awarded subsidies. How many participants have refrained from a presentation because of it possibly being published, is difficult to estimate, but refraining from publication denies completely the very object of the colloquium, which is to informally inform each other of what kind of plans are being made and what kind of work is being done, be it in an advanced or in an initial phase. At the same time it is nice to have at one's disposal the presentations in order to read them through again later. Nowadays proceedings are generally presented, sometimes as an informal publication, sometimes as part of an official journal.

In 2003 there was a dip in the number of participants. Also the number of oral presentations was low. As several people who previously studied mustelids also became involved with the raccoon dog (in German: Marderhund), and as there is no special 'raccoon dog colloquium', it was decided that in the further mustelid colloquia papers on raccoon dogs could also be presented.

Changes in interest

It is interesting to see how the interest in the different mustelid species has developed over the last 25 years. In the figures 2 and 3 the percentages of presentations related to the different groups has been taken from the programmes of the colloquia. Presentations related to mustelids in general are not included, presentations related to two species of different groups (e.g. competition between otters and minks) are counted for both groups. The group of *Mustela* was divided into the larger ones (polecat, American mink and European mink) and the small ones: stoat and weasel. If the programme mentioned oral presentations as well as poster presentations, both kinds of presentations were taken into account. Unfortunately, the posters were not mentioned in all the programmes. Sometimes presentations were skipped or added during the meeting. This was only counted if I had made a note of this in my programme.

As the first two colloquia concerned only Martens, they cannot be considered as representative. Since then, the percentage of presentations related to martens showed a negative trend. There were nearly always presentations on badgers, but this species never gained the majority of interest. The interest in otters fluctuated, at least partly due to the interest and contribution of the organizers.

In the last seven years there seemed to be more interest in the genus *Mustela*, which goes for the bigger species as well as the small ones. If we look at the bigger ones more in detail (fig. 4), we see that the ferret was especially popular at the end of the eighties and the beginning of the nineties, when professor Raimund Apfelbach and his students from Tübingen joined the colloquia. During the last decade the endangered European mink gained more attention.

What does it cost?

The Mustelid Colloquium is not a constituted organisation. Every year one person or several people stand up to organize the next colloquium and fulfil the task of finding suitable accommodation as well as raising both financial and technical support. As the participation of students is considered to be essential, it is important to keep the total conference fee as low as possible. During the first two years there was no fee at all, but when the number of participants increased and the duration of the colloquium extended to three days, it was inevitable to ask for a fee. Looking for sponsors is growing to be more and more important as the colloquium is becoming a truly European event and because the distances and thus the cost of travelling are increasing, so that the total of cost of travelling, together with the entrance fee is threatening to become a financial obstacle.

Figure 5 illustrates the conference fee in Euros over the years, including food and the cheapest accommodation. The figure does not show the actual colloquium costs, nor the amount of subsidies obtained. However, we can be sure that all the organizers worked hard to gain subsidies and other kinds of support, which is a difficult, but essential part of the job of keeping the Mustelid Colloquium accessible to all potential participants.

Table 1. List of Marder-Kolloquiums / Mustelid colloquia 1982-2008

nr	year	location	organizing organization
1	1982	Osnabrück	Dep. Biology & Chemistry, Uni.Osnabrück
2	1983	Kiel	Inst. f. Haustierkunde, dep.Wildbiologie, Uni. Kiel
3	1984	München	Zool. Staatssammlung, dep. Säugetierforschung
4	1985	St. Andreasberg	Aktion Fischotterschutz
5	1986	Berg en Dal (NL)	Research Institute for Nature Management, Arnhem
6	1987	Giessen	Dep. Wildbiologie & Jagdwissenschaft, Uni. Giessen
7	1988	Velm/Wien (A)	Inst. f. Vergleichende Verhaltungsforschung, Wien
8	1989	Tübingen/Herrenberg	Zoologishes Institut, Uni. Tübingen
9	1990	Bielefeld	Dep. Verhaltensphysiologie, Uni. Bielefeld
10	1991	Hamburg-Rissen	Landesforstverwaltung, Umweltbehörde, Hamburg
11	1992	Lindow	Naturschutzstation Zippelsförde/Rägelsdorf
12	1993	Charmey (CH)	Hintermann & Weber AG, Reinach (CH)
13	1994	Berg en Dal (NL)	Institute for Forestry and Nature Research, Wageningen
14	1995	Kouty (CZ)	Agency f Nature & Landscape Conserv., Havlickuv Brod
15	1996	Kollum-Oberlausitz	Staatliches Museum für Naturkunde, Görlitz
16	1997	Fuglsø Centre (DK)	Nat. Environmental Research Institut, Kalø
17	1998	Hankensbüttel	Aktion Fischotterschutz, Hankensbüttel
18	1999	Zeillern (A)	Inst. f. Vergl. Verhaltungsforsung / Vet.Med. Uni. Wien
19	2000	Aulendorf	Wildforschungsstelle des Landes Baden-Würtenberg
20	2001	Papenburg	Dep. Ethologie, Uni. Osnabrück
21*)	2003	Tharandt-Freital	Dep. Forest-zoology, Dresden University of Technology
22	2004	Haus Solling-Dassel	Dep.of Animal Ecology, Uni.of Applied Sci., Höxter
23	2005	Schwerin	Naturforschende Gesellschaft Westmecklenburg e.V.
24	2006	Leinfelden	Büro für Ökosystemforschung, Mühlacker
25	2007	Trebon(CZ)	Czech Otter Foundation Fund/Inst.of Vertebrate Biology
26	2008	Budapest (H)	Dep. of Syst. Zool.& Ecology, Eötvös Loránd University

*) In 2002 the building of the department of Forest-zoology in Tharandtwas flooded, so that the colloquium had to be postponed until the following year.

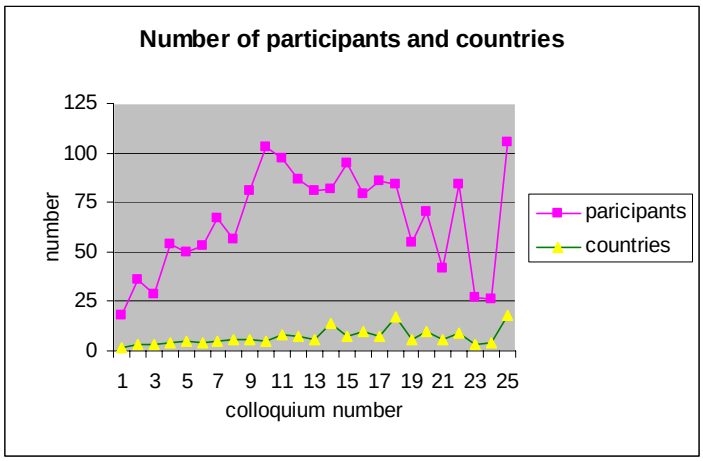


Fig. 1. Development of the number of participants and countries represented.

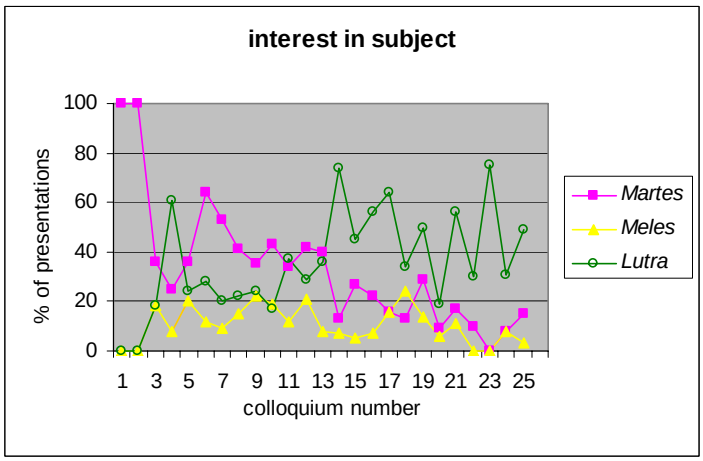


Fig. 2. Percentages of presentations related to martens, badgers and otters.

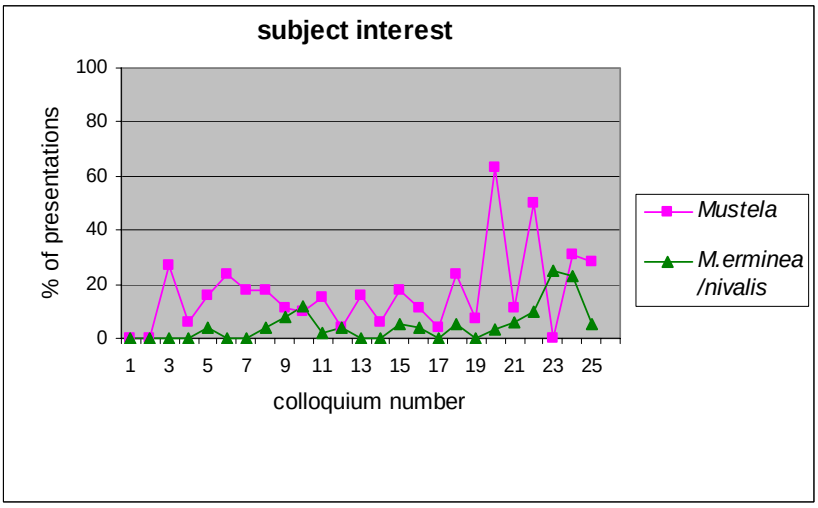


Fig. 3. Percentages of presentations related to the bigger and small *Mustela*-species (see text).

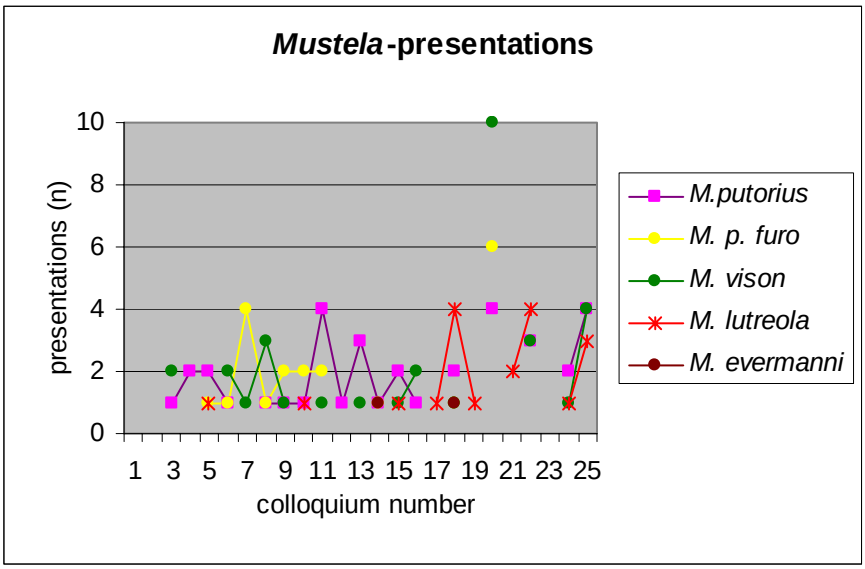


Fig. 4. Number of presentations related to the different *Mustela*-species.

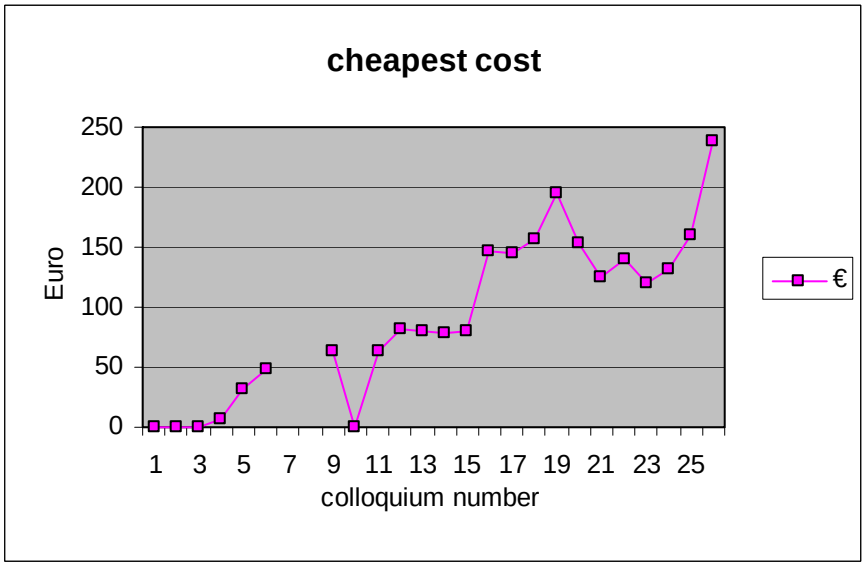
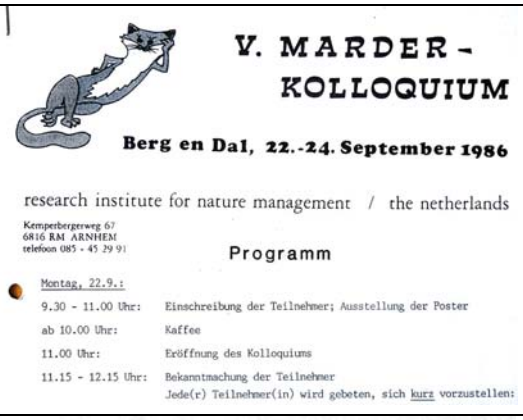


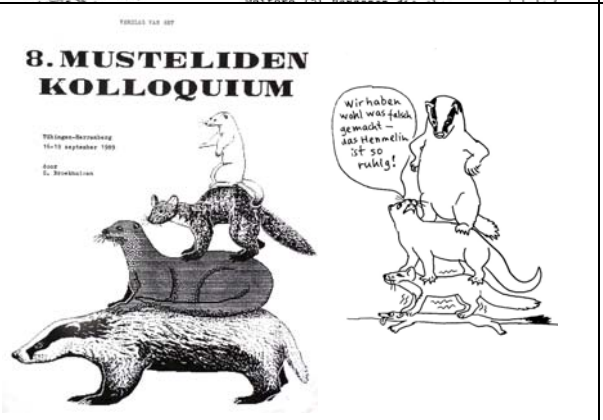
Fig. 5: Development of the cheapest cost of participation in the colloquium, travelling not included.


IV. MARDER -
KOLLOQUIUM
4. - 5.10.1985
St. Andreasberg


V. MARDER -
KOLLOQUIUM
Berg en Dal, 22.-24. September 1986
research institute for nature management / the netherlands
Kemperbergerweg 67
6816 RM ARNHEM
telefoon 085 - 45 29 91
Programm
Montag, 22.9.:
9.30 - 11.00 Uhr: Einschreibung der Teilnehmer; Ausstellung der Poster
ab 10.00 Uhr: Kaffee
11.00 Uhr: Eröffnung des Kolloquiums
11.15 - 12.15 Uhr: Bekanntmachung der Teilnehmer
Jede(r) Teilnehmer(in) wird gebeten, sich kurz vorzustellen:


VI. Marderkolloquium
vom 18.–20. September 1987 in
Rauischholzhausen bei Gießen
Anmeldeformular
An den
Arbeitskreis Wildbiologie
und Jagdwissenschaft
Heinrich-Buff-Ring 25
6300 Gießen
Ich nehme am Marderkolloquium am
17. (X) + Übernachtung (X)
18. (X) + Übernachtung (X)
19. (X) + Übernachtung (X)
20. (X) + Übernachtung ( )
teil und benötige für mich und


VII. MARDER-KOLLOQUIUM
16.-18. September 1988
in VELM/WIEN
PROGRAMM


8. MUSTELIDEN
KOLLOQUIUM
Wir haben wohl was falsch gemacht – das Hermelin ist so ruhig!


Vorläufiges Programm
9. Marderkolloquium
Bielefeld (27.) 28. – 30. 9. 1990


10. MUSTELIDEN - KOLLOQUIUM
27. bis 29. September 1991
Freie und Hansestadt Hamburg
Umweltbehörde


TAGUNGSPROGRAMM
ZUM
11. MUSTELIDENKOLLOQUIUM
IM LAND BRANDENBURG

12. Internationales Marderkolloquium
in Charmey (Schweiz), 17. - 19. 9. 1993

mit Unterstützung der Schweizerischen
Gesellschaft für Wildtierbiologie SGW

Programm (2. Version vom 16. September)

13. Marder-Kolloquium

definitiv
Programm
(Version 1)

16.-18.
September
1994

'Ons Erf', Berg en Dal (bei Nijmegen NL)

Programme
of the 14 th Mustelid Colloquium

Czech Republic
Kouty near Ledeč nad Sázavou

September 14 - 17 1995

HOTEL LUNA
KOUTY

15.
Marder -
Kolloquium

12. - 15. September 1996

in der Oberlausitz

Einladung

16. MUSTELID COLLOQUIUM

9. - 12. October, 1997

in the Fuglsø Centre, Jutland, Denmark

Final Programme and List of Participants

Sponsor: Unibank
Sponsor: PARKEGAARD PARTNERS
Sponsor:

17.
MARDER KOLLOQUIUM
22. - 25. Oktober 1998

17th
MUSTELID COLLOQUIUM
October 22 - 25, 1998

Einladung Invitation

Aktion Fischotterschutz

Aktion Fischotterschutz e.V. · OTTER-ZENTRUM · D-29386 Hankensbüttel · Germany
Tel. 0049-5832-98080 Fax 980851

Letztes Circular
Anmeldung und vorläufiges Programm
Registration & Preliminary Program

18. Marder Kolloquium
18th Mustelid Colloquium

16.-19. September 1999

Schloss Zeillern
Niederösterreich

Einladung

19 th Mustelid Colloquium

14. - 17. September
in Aulendorf, Germany

Invitation
Einladung
20th Mustelid Colloquium
20. Marder-Kolloquium
13. - 16. September 2001

Historisch-Ökologische Bildungsstätte
Papenburg / Emsland
Lower Saxony
Germany

2. Circular

Vorläufiges Programm
Preliminary Program

21. Marderkolloquium
21th Mustelid Colloquium

5.-7. September 2003

Haus "Am Backofenfelsen"
Tharandterstraße
Tharandt / Freital
Saxony/Germany

2. Circular

Vorläufiges Programm
Preliminary program

22. Musteliden-Kolloquium
22nd mustelid colloquium

30. September – 3. Oktober 2004

im CVJM-Haus Solling bei Dassel/
Süd-Niedersachsen

II. Cirkular

Einladung zum
23. Musteliden-Kolloquium

vom 6. 10. bis 9.10.2005

in Schwerin
Mecklenburg-Vorpommern

Einladung zum

24. Internationalen Musteliden-Kolloquium

05. - 08.10.2006

Bernhäuser Forst
in Leinfelden-Echterdingen, bei Stuttgart
Baden-Württemberg
(Southwest-Germany)

Organisation:
Büro für Ökosystemforschung
Mühlacker

2. Circular mit Programm: Ende August 2006

25th
Mustelid Colloquium
4 - 7 October 2007

Trebon, Czech Republic

BOOK OF ABSTRACTS

26th Mustelid Colloquium
28-31 August 2008
Budapest, Hungary

BOOK OF ABSTRACTS

http://mustelid2008.elte.hu

ABSTRACTS

Analysis of urban patches inhabited by Stone marten (*Martes foina*) in Budapest

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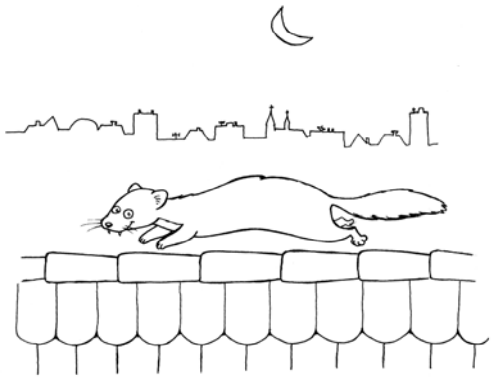
Through the past 12 years more than 250 topographic records of stone marten were gathered within Budapest on the basis of questionaries, correspondence and phone-callings. We pointed out that the occurrence and the diversity of food-basis of the generalist stone marten do not show significant relation to the greenness of habitats. In our hypothesis, therefore, is that the occurrences depend mainly on the quality, quantity and availability of hideouts. The aim of this analysis is to recognise connections between the structure of the habitat patches and records of stone martens. The two main types of patches were defined as „green habitat" (had more than 50% green covering), and „desert habitat" (with much less green inside).
The coordinates were transformed from WGS-84 to EOV, then snapshots (0.25 km^2) were ordered to all dots using ArcView GIS 3.2 program. Ratio of the green areas and the buildings within a patch was expressed in the ratio of the different coloured pixels.
The green patches were preferred significantly (60%). The desert patches might assure compensating factors, like the structure of buildings, type of roof, gutter, according to the relatively high number of records. There are many multi-storeyed, old, often neglected houses of Eclectic and Secession style in Budapest, appear as excellent hideouts, providing also nutritive sources.
Meanwhile the presence of this species become usual, the „evolution" of the capital results intensive shrinking of green pathces and dramatic modernization of buildings. This process would drive back the highly urbanised, but build dependent stone martens.

Type of presentation: Poster



Presentation of the 2nd European mink (*Mustela lutreola*) restoration plan in France (2007-2011)

Rachel BERZINS

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The European mink is one of the most endangered mammals in Western Europe. Today, the European mink occupies only seven departments located in south-western France, compared with 27 in the middle of the 20th century. A first restoration plan from 1999 to 2003 and the studies carried on until today have enabled a better understanding the possible causes of the species decline and to carry out conservation actions. In order to continue these efforts, a second restoration plan has been validated in 2007 by the Ministry of the Environment. The plan has four specific objectives: 1/ Put European mink conservation in the heart of public policies, 2/ Protect the European mink *in-situ*, 3/ Put together all the necessary conditions to implement a population reinforcement – reintroduction program 4/ Develop the animation and communication. These four objectives are broken down into 74 actions to implement from 2007 until the end of 2011. The ultimate purpose of these actions is to prepare territories for the European mink, which will have to meet the ecological requirements of the species and to reduce the known mortality risks. The success of the reinforcement and/or reintroduction program of individuals bred in captivity strictly depends on it. Good preparation of these integration territories and collaboration between all the implicated partners of the plan, on a local and international scale, are indeed paramount to the long-term success of the European mink restoration plan. The installation of one or several breeding facilities is one of the priority actions for 2008.

Type of presentation: Oral

Atypical behaviour in a small mustelid - Feral ferrets in the U.K.

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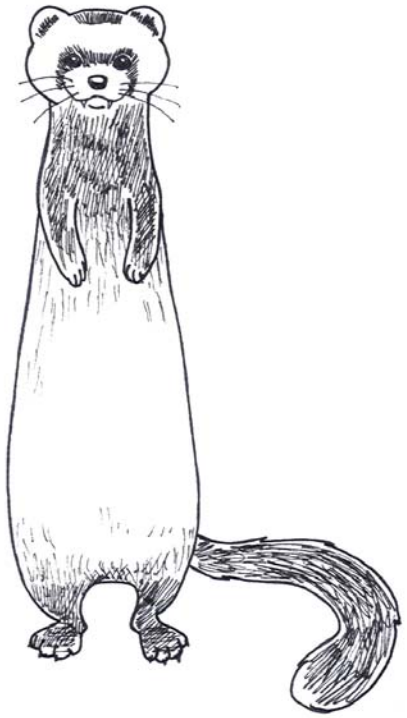
Many wild animals maintain territories, either individually or as part of a larger social unit, to defend resources. In carnivores, whilst the resources defended may vary from access to mates, to sufficient prey populations, territorial behaviour is usually exhibited to some extent. Few carnivores have been domesticated, but in all domestic species, one of the important factors man has selected for is reduced aggression levels. This could have important consequences for feral populations of carnivores, potentially altering their behaviour. In the case of Rathlin Island, off the north east of Northern Ireland, feral ferrets have been introduced and are established as the top terrestrial predator. Here we examine the over-wintering ferret population, showing how radio-tracking has revealed unusual behaviour such as frequent den sharing and other aspects that are atypical of small mustelids.

Type of presentations: Poster



Has culling affected the behaviour of the Eurasian badger (*Meles meles*) in Ireland

Rosario CARROLL, Dr. Leigh CORNER and Dr. Nicola MARPLES

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The Department of Agriculture, Food and Fisheries (DAFF) in Ireland has established an interim policy of culling badgers in areas where it has been established that tuberculosis in cattle has been caused by infection from the local badger population. Written records from 1998 to 2008 are being used to assess if the removal operation has changed the behaviour and population dynamics of badgers in Ireland.
Bite wounding is a common occurrence in badger population in the UK. This aggressive behaviour may be a result of large group sizes where individuals are competing for scarce resources. This does not seem to be the case in Ireland as bite wounding is a rare occurrence. Using the information gathered in the last decade we will investigate if bite wounding had been more prevalent before badger numbers were reduced. We will also examine cubbing times and cub numbers to see if the reproductive status of badgers has been effected by the removal operation.

Type of presentation: Oral

Annual Cubbing Trends of the Irish Badger (*Meles meles*)

Rosario CARROLL, Dr. Leigh CORNER and Dr. Nicola MARPLES

The Department of Agriculture, Fisheries and Food's policy of limited badger culling during the first three months of the year is based on an exploration of English data and limited Irish information gained during the studies of on a limited number of badgers. To date there is little factual data on the range of implantation dates, the year to year variation, and how this may impact on the restriction period. The data collected form this study should provide an accurate timeline beginning at implantation and ending when the cubs become independent. Badgers are thought to implant and give birth at similar times each year. To investigate this theory data has been collected from 2005 – 2008 during the cubing period. The number of cubs, length, weight and sex (where possible) were recorded and used to estimate the date of implantation and the subsequent birthing dates of the cubs.

Type of presentation: Poster

Cardiff University Otter Project: Making good use of road kill

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Since 1992 the Environment Agency has funded researchers to conduct post mortem examinations of otters *(Lutra lutra*) found dead in the UK. Cardiff University Otter Project has been examining otter carcasses found in Wales and England since 1994. During that time, the gradual recovery of otter populations has contributed to a steady increase in the numbers received each year, and to date well over a thousand animals have been examined. Most otters found are killed by road traffic accidents, but illegal killings may go largely unrecorded.
Here, we present an overview of the techniques used during post mortem examination, and a brief summary of some of our research findings. Current research includes landscape genetics, dietary studies, toxicology, parasitology, monitoring of otter health and reproductive activity, and chemical signalling. More deaths occur in winter than in summer, and more males are found than females. Pregnancy rates are low, but our sample may be biased. While some parasites may be cause for concern, the UK otter population is generally healthy, and contaminant levels are low.
While otter deaths are clearly undesirable, opportunistic use of carcasses found can contribute enormously to our knowledge of this elusive species. Post mortem observations, measurements, and biological samples are of great benefit to ecological research, while detailed information about mortality incidents can be used to help guide mitigation efforts. Projects such as this can make a valuable contribution to chemical monitoring schemes and disease surveillance programmes, as well as informing conservation of this EU protected species.

Type of presentation: Oral

The conservation of the European otter in Italy: are absences reliable to predict otter's recovering?

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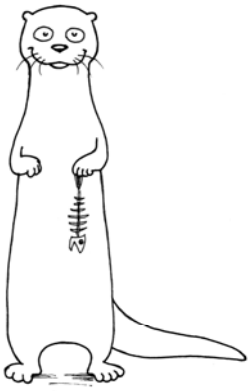
Predicting the spatial distribution of wildlife is of crucial importance in conservation biology. This includes the prediction of suitable habitats that a recovering rare species might re-colonize. In Italy, recent samplings indicate that the otter (*Lutra lutra*) is recovering its original distribution range. To prioritize conservation actions, it is important to protect the areas where the species could potentially expand and to get a better understanding of the species' habitat requirements. Several Habitat Suitability Models (HSM) may achieve this goal. They use either presence-only or presence-absence data. As the otter is in expansion, it may not have reached all potentially suitable places. This means that absences may not always reflect unsuitable habitat.

In this study, we assessed the efficiency at predicting expansion area of a presence-only (Ecological Niche Factor Analyses, ENFA) and of a presence-absence (Generalised Linear Model, GLM) method. For this purpose, we fitted both models on distribution data collected before and after a re-colonisation event and evaluated the predictions by means of cross- and out-validation.

Our results suggest that the prediction of suitable habitats is more accurate if absences are not included in the analysis. Moreover, absences are misleading for the evaluation. Specifically, the GLM model based on presence-absence data did not identify the areas of species recovering. By contrast, using presence only data allowed the ENFA to predict re-colonization areas and to obtain more reliable evaluation measures.

Type of presentation: Oral



Badger (*Meles meles)* road mortality in the Netherlands: victim characteristics and effects of mitigation measures

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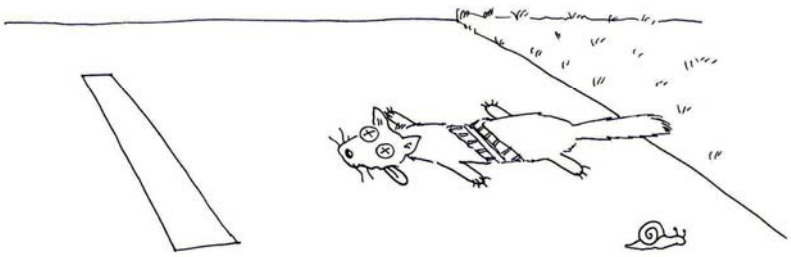
In the 1900's, the badger population of the Netherlands was estimated to count 2500 to 3000 setts with over 4000 individuals. Between then and the 1960's, the number declined drastically and stayed low until the mid-1980's with about 400 setts in the whole of the Netherlands. In the 1980's, it became clear that a high percentage of the population, locally up to 25% was killed yearly by road traffic. For this reason, mitigation measures such as fauna-tunnels and rasters were taken by the Dutch government.
Between 1990 and 2006, data on badger traffic victims was gathered by NGO "Das & Boom" and the Centre for Transport and Navigation. Here, we present this data for the first time and test whether the mitigation measures reduced victim numbers.
First, we present age, sex, phenology and distribution of the victims. Secondly, we show the unequal the distribution of victims over motorways, provincial roads and local roads. Thirdly, we test whether the mitigation measures resulted in a decrease of traffic victims.

Type of presentation: Oral



Age structure of the recovering population of otters (*Lutra lutra*) in Denmark

Morten ELMEROS, Hans Jørgen BAAGØE, Thomas SECHER JENSEN and Aksel Bo MADSEN

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The distribution range and population size has increased since the late 1980ies in Denmark. Estimated from numbers of carcasses collected annually there was a 9 % increase in population size. We analysed individual age by counting incremental cementum lines in teeth from 362 otter collected nationally during 1980-2000. The sample comprised 25 % juveniles, 14% subadults and 62 % adults. The oldest individual was 14 year old male and 3% of the otters reached ages older than 9 years. Age composition of males and females did not differ, and there was no change in age of otters during the sampling period. Average age of traffic killed otters was higher than drowned and other or unknown mortalities.
Annual reproductive rate of adult females was estimated to 68 % with an average litter size at birth at 1.7 cubs. No females younger than 3 years of age showed signs of reproductive activity. A static life table corrected for increasing population size showed that the population is quite resilient to cub mortality (0.7) presumably due to the low mortality of adults.

Type of presentation: Oral

The land use and daily activity of urban Stone marten (*Martes foina)* in Krakow, southern Poland

Maria ESKREYS-WÓJCIK, Izabela WIERZBOWSKA, Adrzej ZALEWSKI and H. OKARMA

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We measured home range size and daily movements of urban stone martens (*Martes foina)* in the city of Krakow (southern Poland) from February 2007 to May 2008. Eight stone martens were radio-collared, two adult males, two adult females, four subadults individuals. Study area was split into two subunits, one located in the old part of the city (high density of apartments, houses, scarce greenery) and the second one on the outskirts (mainly semidetached houses, large green lands). Data were collected one per fortnight during night sessions with locations taken on 15 min intervals. In addition, martens were radio-tracked twice a week during day in order to localize their resting sites. Home ranges of urban stone martens in were relatively small and differed according to the age and gender of individuals. There were estimated 16 ha for adults, respectively 5 ha for juveniles and 18 ha for males, 13 ha for females. We did not find significant differences between home range sizes according to the type of habitat (city center or suburbs). Urban stone martens were active mainly during night and during day they were resting on attics or directly under the building roofs. The level of their activity and intensity of movements was correlated with year season as in winter they were less active and their home range were the smallest. We assume additionally that land use by these animals depends on food availability. Moreover, daily activity varies according to weather conditions.

Type of presentation: Poster

Morphologic and genetic discrimination between *Martes martes* and *Martes foina* in Italy

Vercillo FRANCESCA and Ragni BERNARDINO

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Pine marten (*Martes martes*) and stone marten (*Martes foina*) represent the only two Italian species of the genus *Martes*. There are a few morphological differentiating characters it is hence hard to reach a correct taxonomic identification of the two species. The present study is addressed to collect samples of Italian population of both species, in order to check the dependence of the morphological distinctive characters found in the scientific literature.
A sample of 122 specimens belonging to genus *Martes* has been collected in Italy. The identification process of individuals as pine or stone marten followed a 3-step procedure: 1) morphologic analysis; 2) morphometric analysis; 3) cross check with genetic analysis.
Six morphological characters have been considered discriminating among the two species by literature and using the screening of the coat colour and marking patterns they have been assigned 48 individuals to pine and 74 to stone marten.
A total of 54 *bacula* have been analysed. It has been devised a new "Penis Index": PI (total length of the *baculum*/head-body length). The PI divided the sample in two well distinct groups: range 6.24-8.10 (pine martens) and range 9.52-11.17 (stone martens).
The genetic analysis has attributed: 50 pine martens and 72 stone martens.
On the basis of these findings, considering the genetic attribution as "true", the comparison of the three methods, has led to the following considerations: the morphologic analysis shows a probability of correct attribution P=0.984, the morphometric one performs an attribution with p = 1.0 of dependence.

Type of presentation: Poster

Alternative radio tracking and biotelemetry methods for small and meso mammals

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Many ecological studies on mammals use tracking methods to collect biological data on animal movements and/or behaviour. However efficiency of them are limited by biological, environmental, methodological as well as technical difficulties. Currently applied and commercially distributed systems of radio telemetry have some disadvantages, which are the followings: 1. having only a limited use in continuous radio tracking, 2. permanent work of one or more person during the investigation period, 3. measurement process must be synchronized using some kind of communication techniques, 4. single measurement takes a lot of extra time, approximately one minute (determination of one coordinate needs two or three measurements), 5. parallel investigation of more than one individual isn't possible, 6. physical and mental condition of the investigator can influence the accuracy of measurement. 7. due to their low resolution are also unable to answer certain research questions. 8. the possibility and accuracy of further bio-medical and environmental measurements parallel with radio tracking are strongly limited.

Our automatic radio telemetry system (ARS) based on fixed antennas and receivers, and all devices are controlled by a computer station. In the case of larger animals (voles, dormice, raptors, mustelids), specially constructed transmitters using improved version of Impulse Pack Code (IPC) method could provide information on temperature, voice and activity of animals, illumination level, distance from other marked specimens, battery status, GPS coordinates, etc. At the minimum level of incoming signals all of the above-mentioned parameters can be accurately calculated. The IPC technology can ensure simultaneous and parallel treatment of animals in the same frequency range. Adaptive behaviour of animals can be also monitored using a special software application.

This research was supported by the National Office for Research and Technology (contract nos: 3B023-04 and NKFP6-115/2005).

Type of presentation: Oral

Body weight of mustelid species from Transylvania – data on animals hunted between 1964-1995

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Body weight of 8 mustelid species (*Meles meles, Martes foina, M. martes, Mustela erminea, M. lutreola, M. nivalis, M. putorius, Mustela vison*) were analyzed statistically, using a sample of 495 specimens harvested between 1964 and 1995 in the eastern part of Transylvania (Romania). All measurements were done by the late István Kohl, muzeologist. Sexual dimorphism was found in case of all the 5 species investigated in this sense. In the case of the polecat, due to a larger sample, seasonal changes in body weight were also analyzed. Males showed a strong reduction of their body weight in summer, whereas females' weight showed no significant changes among the different seasons. No significant differences were found between polecats harvested in hilly regions and the ones of mountainous regions, respectively. Results were compared with the previous studies.

Type of presentation: Oral

Stone martens (*Martes foina*) and cars: factors promoting marten-car associations in the context of marten-related car damage

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In urbanised environments stone martens (*Martes foina*) commonly cause conflict by climbing into car engine compartments and tearing up heat and noise insulation mats or by chewing rubber and plastic parts. While most research has focused on the reasons for why martens engage in this behaviour after they have entered an engine compartment, virtually no data exist on why martens visit cars in the first place. We radio tracked 13 urban stone martens over a two-year period in Luxembourg to determine the context in which martens visit parked cars during their nightly activities. The evidence suggests that marten-car associations were neither primarily driven by thermal benefits that could potentially be gained from recently used engines nor by the need for a safe environment for resting, hiding and food consumption purposes. However, stone martens strongly associated with parked cars in spring and early summer when their activity on roads was highest and when they systematically patrolled and scent marked parked cars. The main factor promoting marten-car contact rates thus seems to be territorial behaviour. In our study area between 1 and 1.9% of road-parked cars were reported to have been damaged per year. We conclude that martens have learned that strange marten scent is usually associated with parked cars, which triggers an increase in car visits during spring when territories are actively patrolled. Whether the observed damage is a direct aggressive response to strange scent or a by-product of increased contact rates during this time of the year remains uncertain.

Type of presentation: Oral

Stone martens (*Martes foina*) as urban adapters

Jan HERR

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Stone martens are common occupants of urban environments across continental Europe. The aims of this study were to determine how strongly martens associate with urban habitat on a local scale and how this impacts their ecology.
Thirteen stone martens (10 females, 3 males) were radio tracked in two towns in southern Luxembourg during a two-year period, in order to investigate activity patterns as well as nocturnal ranging and diurnal denning behaviour. All martens maintained territories almost wholly within the urban perimeter of the respective study towns. Territories (100% MCP) were small in size (males: 112.6 ± 24.8 ha; females: 37.0 ± 22.2 ha) and population densities moderately high (4.7 - 5.8 adults.km^{-2}) by comparison with previous studies of rural populations. Socio-spatial organisation was based on intra-sexual territoriality. Almost all denning events took place in buildings that were located within the urban perimeter. The animals were strictly nocturnal and timed the onset and end of their outside-the-den activity such as to avoid road and pedestrian traffic. The martens were clearly well adapted to living in urban areas. However, despite a strong association with this habitat, urbanisation has surprisingly little impact on their socio-spatial organisation by comparison with its effects on other mesocarnivore urban adapters.

Type of presentation: Oral

Genetic structure within and among populations of the Eurasian otter (Lutra lutra) in the UK

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The Eurasian otter (*Lutra lutra*) declined significantly Europe during the 20th Century. In the UK the decline is thought to have started in the late 1950's, and by the mid 1970's the UK population was largely confined to strongholds in parts of Scotland, Ireland, mid and West Wales and the West Country. In recent years the otter population has started to recover. Otter surveys confirm an increased distribution of otters in Wales and England, in some areas exceeding BAP (Biodiversity Action Plan) targets. However, little is known about the degree of genetic loss due to the decline, potential barriers to recolonisation, routes of dispersal, or the contribution of reintroduction programmes to population increases.

Our research aims to examine the genetic structure and demographic history of otters in the British Isles by extracting DNA and amplifying microsatellite markers from muscle tissue. Samples were collected from over 600 otters found dead between 1992 and 2008. Preliminary results using Bayesian clustering analysis have identified at least eight populations of otters in England and Wales, and with the use of GIS software we are able to visually illustrate otter population locations and comment on the success and source of otter reintroductions. The use of GIS software and high quality genetic data allows the degree of genetic mixing to be mapped on to landscape features. Interpretation of such data can be used to indicate how landscape features affect otter dispersal and habitat use.

Type of presentation: Oral

Chemical communication in otters: use as a monitoring tool

Eleanor F. KEAN, Elizabeth A. CHADWICK, Carsten T. MÜLLER, and Fred M. SLATER

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Spraint surveys are a standard method for monitoring populations of otter (*Lutra lutra)*, but while such surveys identify the presence of otters they do not provide information about population structure. DNA analysis of spraints can identify individual otters, but is costly, time-consuming and has a low success rate. A novel method of obtaining population data is needed to monitor otter populations fully and to assess conservation efforts. It is thought that otters largely communicate by scent marking, so chemical profiling of otter spraint has the potential to provide much needed information such as sex, age, reproductive status and individual identity. Sampling using headspace SPME (solid phase micro extraction) and analysis using GCMS (gas chromatography mass spectrometry) have been used to distinguish volatiles from scent glands taken at post mortem. Preliminary data show over 40 different components that vary in presence and amount between individuals. Analysis of more scent glands from our considerable archive will be used to develop a predictive model with the aim to discriminate otter identity e.g. sex, age or reproductive status. The model will be verified using spraint from known individuals in captivity. Finally, the feasibility of using this technique for population monitoring will be tested through spraint collections from two river catchments in England.

Type of presentation: Poster

Body temperature and activity in Eurasian Otters (*Lutra lutra*)

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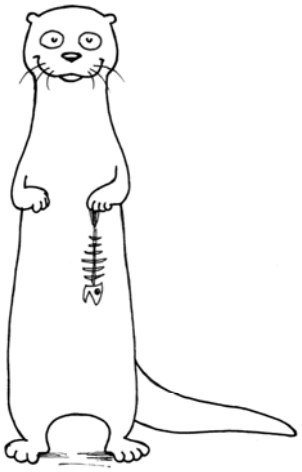
In order to study effects of varying ambient temperatures on the reactions of otters to their year round environment, estimation of physiological parameters like body temperature is necessary. The semi-aquatic otters rely for thermo insulation almost entirely on their fur and the air trapped inside it. The aquatic environment poses unique, and often severe, thermal problems to endothermic mammals. The Eurasian otter obtains almost all its food from water and spends several hours each day swimming and diving. Body core temperature dynamics were studied to examine how otters modulate energy loss in response to activity and environmental variables. Therefore two female otters were fitted with intraperitoneal thermodependant transmitters. The otters were kept in large semi-natural enclosures. Activity and body temperature were monitored by locating the animals and maintaining continuous surveillance for 24 h in 5 min intervals in order to detect subtle, short-term changes. During the activity phase the females showed two to five periods of activity, lasting approximately half an hour to three hours. One of the most striking observations in this study was the close correspondence between activity and body temperature. The mean body temperature during inactivity averaged close to 38° C, during activity close to 40° C. In spite of the cooling power of the aquatic environment a female was able to maintain the normal body temperature during a controlled immersion trial while active in water for 2.5 hours. Therefore, we suggest that the rise and fall of body temperature is not mainly caused by water temperature, but endogenously controlled.

Type of presentation: Oral



Craniometric characteristic of European polecat (*Mustela putorius*) and Steppe polecat (*Mustela eversmanni*)

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The European polecat *Mustela putorius* (Linnaeus 1758) and the steppe polecat *Mustela eversmanni* (Lesson 1827) are still classified as two separate species in spite of the possibility of their hybridization. The low level of genetic divergence between these two species indicates that both species may be just subspecies of *M. putorius.* Their skull is also very similar and easily interchangeable. In the past, the regio postorbitalis was regarded as the most reliable determinative characteristics of the species (more conspicuous in *M. putorius).* Presently, the combination of several features with statistical significant differences and with a coefficient of variation < 2 % are required for the right determination of these species. Our goal is to determine statistically significant differences between both species regarding the sexual dimorphism. The investigated skulls were collected in 1954-1995 in several localities in Slovakia and the Czech Republic. The samples were acquired from several Slovak museums. 41 craniologic features were measured on 126 skulls of *M. putorius* and 92 skulls of *M. eversmanni*.

T-test (alternatively Wilcoxon´s test) was used for statistical processing. The conclusions of the research are: *M. putorius* has for example longer neurocranium (regarding the same condylobasal length as *M. eversmanni*), wider regio postorbitalis, wider rostrum in foramina infraorbitalia, more distant bullae tympanii, higher foramina piriformia. On the other hand, *M. eversmanni* has for example wider regio interorbitalis, wider rostrum in C^1, higher orgitae, longer and wider C^1, longer C_1, larger distance C^1 – C^1, longer mandibula and higher mandibula in M1.

Type of presentation: Poster

Genetic structure of otters (*Lutra lutra)* from two fishpond systems in Hungary

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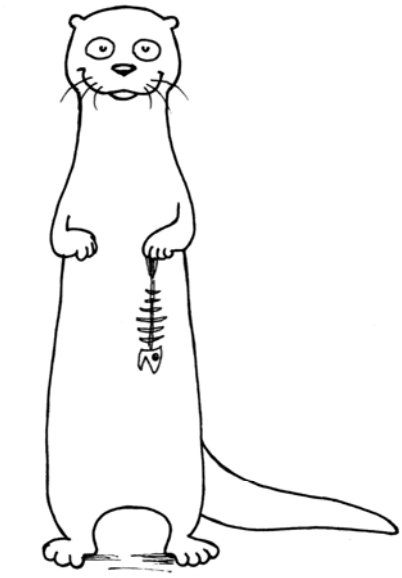
Little is known about the genetic structure and population size of the elusive and nocturnal Eurasian otter (*Lutra lutra)* living by fishponds in Central Europe. The aim of this study was to determine these parameters (genetic structure and population size) on two areas (30-ha A1 and 83-ha A2) in Hungary using non-invasive sampling methods (collecting fresh spraints and anal jellies on standard routes monthly over a two-year period) for molecular testing. Nine microsatellite loci were screened, generating 18 and 15 individual otter genotypes composed of high number of alleles (47 different). The sex ratio (male/female 5.6) was approximately the same in the two samples with few females. On A1 all otters were detected only once, most of these presumed as transient, while on the A2 most otters were resident forming two families. The mean genetic distance between individuals differed between areas. Otter densities were higher in A1 (4.6±0.52 /100 ha otter habitat; 1.2±0.13 /km shoreline) (possessing higher fish availability) compared to A2 (1.8±0.18/100 ha; 0.35±0.035/km). In conclusion, this initial study of fish pond otters in Hungary revealed high genetic diversity, a scarcity of females, a medium to high overall density and characteristic migrants.

Type of presentation: Poster



Feeding habits and food resource partitioning of sympatric mustelids in Hungary

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The feeding ecology of badgers *Meles meles* and its interspecific trophic relationship with sympatric martens *Martes* spp. (*Martes foina/Martes martes*) was investigated in agro-ecosystem in the Pannonian ecoregion (Central Europe, SW Hungary). Diet composition was determined by scat analysis (over four years, badger, n = 166; marten, n = 545). Badgers, as compared to martens consumed less birds (birds without pheasant; mean; badger: 0.1% vs. marten: 9.7). No statistically or biologically significant differences were found between predators, concerning the consumption of small mammals (59.3% vs. 48.0%), brown hare (0% vs. 0.6%), wild boar (0.02% vs. 1.2%), cervids (0.1% vs. 0.1%), pheasant (0% vs. 0.02%), domestic animal (1.2% vs. 0.2%), reptile, amphibian and fish (0.6% vs. 0.3), invertebrates (1.3% vs. 0.7%) and plant material (37.5% vs. 39.4%).
The standardized trophic niche breadth of both predators was very narrow, but the badger had a narrower mean value (B_A = 0.07 vs. 0.11, $P < 0.05$). Badger and marten diets contained 38 and 49 different prey taxa, as well as 11-11 plant taxa. The mean trophic niche overlap between predators was high (67.1%). The trophic niche breadth or trophic niche-overlap values did not vary significantly between years and seasons. No coherent relation was found between the small mammal consumption (%B values) of predators and biomass of small mammal availability (badger: r_P = 0.26, vs. marten: r_P = 0.15). Both badgers and martens consumed primarily small sized (< 50 g, 97% vs. 94%, resp.) and terrestrial (98% vs. 86%) animals.

Type of presentation: Poster

Habitat selection of weasel (*Mustela nivalis*) in agricultural fragmented landscape in Central Italy

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We present a study on the spacing pattern of a population of weasels in Central Italy. This pattern is described both at a level of generic space and at a level of habitat, meant as a set of vegetation and environmental features. The study area is a typical agricultural landscape, supporting highly fragmented natural habitat modified by thousands of years of human presence and work. The results indicate that individual home ranges varied from non-breeding to breeding season, and show strong preference for habitats formed by the edges between fields and meadows. The shapes of the individual home ranges follow these edges, producing a typical linear form. In particular, home range areas of both sexes are similar during winter, but during the warm season males increase their movements and the extension of the tracts they cross, which results in home range areas up to ten times larger. Our results confirm the hypothesis of an intra-sexual spacing pattern in solitary and small mustelids; moreover, they indicate high specialization in spacing pattern with a strong selection for residual high covered habitat.

Type of presentation: Oral

Distribution and conservation of pine marten (*Martes martes)* in Ireland

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Pine marten (*Martes martes*) are considered one of the rarest mammals in Ireland. Until recently, very little was known concerning their distribution, conservation status or general ecology. The National Pine Marten Survey of Ireland (NPMS) was initiated in 2005 and is the largest research project to be conducted on the species in Ireland. The principal aims of the NPMS include determining the current distribution and conservation status of pine marten and to undertake research into the ecology of the species.

During 2005/06 an occupancy survey was undertaken in 183 10 km national grid squares, with data compared to an original survey carried out between 1978/80. Transect surveys based on scat collection, with DNA testing to verify scat identity, were utilised. In total, 553 transects were traversed in forest/scrub habitat and approximately 841 km of transects were completed.

In 2005/06, pine martens were detected in 117 (63.9%) 10 km grids and non-detected in 66 grids (36.1%), compared with pine marten being detected in 52 grids (28.4%) and non-detected in 131 grids (71.6%) in 1978/80. Seventy-two of the resurveyed 10 km grids changed occupancy status, with 68 (94%) changing from non-detected to detected. With reference to the original survey, this change was statistically significant (McNemar Test; $\chi^2 = 34.3$, df = 1, $P<0.001$).

Increases in pine marten range and distribution in Ireland can be attributed to increased forestry cover; legal protection; and deliberate release. Implications of range expansion and other aspects of pine marten ecology and conservation in Ireland are discussed.

Type of presentation: Oral

Activity patterns of the Pine marten (*Martes martes*) in a Mediterranean woodland: evaluation of preliminary data

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Two pine martens (*Martes martes)*, a male and a female, were radio-tracked (six and eleven months respectively) in a forest area near Siena, Central Italy. Martens were captured using box traps baited with eggs and mice, marked by Passive Integrated Transponders (PITs) and fitted with a VHF radio-collar (Televilt, 60 g). Individuals were monitored daily and fixes were collected to provide data for a 24 hour period within each week.
During the radio-tracking sessions environmental parameters (temperature, humidity, pressure, precipitation and moon phase) were also collected. The activity pattern was correlated with the environmental factors by Logistic Regression procedure. Nocturnal, diurnal and crepuscular activities were measured as the proportion of active fixes for each phase. Activity differed between seasons and was mainly influenced by the environmental temperature. Diurnal and nocturnal patterns of activity were compared.

Type of presentation: Poster

European otter (*Lutra lutra*): small scale monitoring on Zrmanja River in Croatia

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Survey of distribution of otter in Dalmatia (Croatia) conducted in 2006/2007 shows that the Zrmanja River is the only river in Dalmatia where the otters are still present on entire flow of the river, from the source to the mouth at Novigradsko Sea. Zrmanja River is situated in North Dalmatia in the area of Nature Park Velebit. It is 69 km long, and its surface drainage is 907 square kilometers. During the summer months 14 km of Zrmanja waters disappear beneath the ground toward the river Krka and small part of the Zrmanja is with very low water level or even dry.
Through this research a small scale monitoring of otter presence on Zrmanja River has been conducted. Monitoring has been based on repeated monthly surveys of indirect signs on seven previously determined stations on the Zrmanja and detailed boat surveys of the parts of the river Zrmanja and its tributary Krupa as well sea shore for determination of holts and potential resting sites. Collected data have been correlated in order to estimate several different aspects of otter behavior; otter presence in relation to human presence, seasons, water quality, habitat quality and otter presence on the sea.
Results of the research are used for the estimation of the population density based on visitation rate and spraint density, state of the otter population on Zrmanja river as well as habitat condition.

Type of presentation: Poster

A census of Pine marten (*Martes martes*) populations in the south-east of Ireland using genetic analysis of hair and faeces

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The pine marten population in Ireland appears to be recovering after heavy persecution in the last century. A recent distribution survey found evidence of range expansion, possibly due to recent legal protection and increased national afforestation. However, data is lacking on other aspects of ecology such as population density, sex ratio and gene flow.
Traditional census techniques can be labour intensive, expensive and futile for such an elusive mustelid. Non-invasive methods provide an alternative means to monitoring wildlife populations through DNA analysis of remotely collected biological samples. Microsatellites are genetic markers generally used for this purpose but there are currently none developed specifically for *Martes martes*.
Microsatellites developed for other mustelid species were tested for polymorphism in *Martes martes* using tissue DNA from road casualties. Eight of the most variable loci are necessary to reliably assign individual identity to non-invasive samples according to probability of identity statistics. These markers, along with others for species and sex identification, are currently being used to census two isolated populations by genotyping faeces and plucked hair. Results so far indicate a relatively high population density of martens in the study area with both non-invasive and live trapping surveys capturing similar numbers of individuals.

Type of presentation: Oral

Pine marten traffic victims in relation to verge features and possible measures to reduce their number

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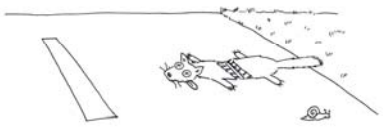
The pine marten (*Martes martes*) is a rare predator in The Netherlands that breeds mainly in the bigger forests in the central and northern part of the country. The population is at this moment estimated at approximately 450 adult animals. The main part hereof (300 specimens) is found on the Veluwe, the largest linked woodland in the centre of The Netherlands. The area consists of a surface area of approximately 600 km2 and is covered generally with various kinds of forests. Although, for Dutch standards, there are relatively few roads in this area, each year dozens of pine marten die there as traffic victim. Thus, the continued existence of the population is in danger. The question is, whether, with certain measures, the number of traffic victims can be cut back. It is, therefore, important to know whether there are specific features on and alongside the roads around the spots where the traffic victims occur.
Since 1982 pine martens that are run over and killed are being collected and examined. Amongst others, age and gender are then investigated. Finding location and finding date are recorded as accurately as possible. All in all the data of at least 300 traffic victims on the Veluwe are available.
By relating the data of the most accurate topographical maps (1:10.000) to the spots where pine martens were run over and killed, it can be ascertained whether various kinds of vegetation and structures alongside roads also present various degrees of risk for pine martens to be run over and killed. The investigated parameters consisted of the different kinds of roads and the presence of uprising timber, up until 500 meters away from the road and crossings and subways, such as viaducts and tunnels. Ultimately a risk number per 100 meters road distance could be calculated for all provincial roads and highways, that indicates the extent of the chance to be run over and killed as a pine marten on that particular spot. In this way it is possible to take more specific measures on the most dangerous spots, so that the number of traffic victims can be reduced. Conversely, it should also be possible, by adapting the structures along roads, to be able to direct the pine marten to a certain extent. In that case this should be done in combination with safer crossing places. Safer crossing places can consist of not only game viaducts and game tunnels, but speed limiting measures and adjustments to the road as well. Solutions to be considered are paving with clinkers near crossing places or installing ridges that cause a great deal of noise when cars pass.
By continuation of the monitoring programme, it can be ascertained in (the long) term if the applied measures are effective.

Type of presentation: Oral



The reintroduction of European mink (*Mustela lutreola* Linné 1761): test of different methods of trophic and social attraction and their effectiveness to induce residence

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In a lowland river system of north-western Germany a reintroduction project of European mink *Mustela lutreola* is in progress since 2000. During the period of 2007/2008, 8 female and 7 male adults as well as 11 subadults of the European mink were released in two sites which are connected by a river corridor of 35 km length.
In many cases, newly released animals leave the site after short period and migrate over long distances before they establish a home-range. Therefore, we tracked 10 European minks (7 males and 3 females) marked with intraperitoneal implanted radio-transmitters to determine their temporal and spatial activity, including explorative behaviour, travel distances, distribution and habitat-use in dependence of social and trophic attraction during and after release.
As one approach, pregnant females were brought into field-enclosures at the releasing sites; during this adaptation they gave birth and raised their cubs. To evaluate the importance of social attraction appropriate males were released at sites in the vicinity of these enclosures. Additionally, different combinations of releasing-units (i.e. female-male group, single females and single males released with and without pre-release adaptation in enclosures) were tested. Depending on the local conditions, duration of pre-release adaptation in enclosures varied.
As a second approach, at each releasing site bait-boxes and life traps were set up, checked and equipped with food.
At the actual stage of data analysis no relation between trophic attraction and residence is obvious; nevertheless, in certain cases it seems to have positive effects on post-release monitoring by live-trapping.

Type of presentation: Poster

Diet composition of steppe polecat (*Mustela eversmanni*) during winter in Northwest-Hungary

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Steppe polecat is a scarce and protected species in Hungary. The feeding habits of this species are still poorly known throughout its European distribution area. Diet composition and feeding habits were investigated by analysis of scats collected from known warren of steppe polecat in an agricultural habitat in winter season. Frequency of occurrence and volume of the different foods were quantified. Rodents, especially common vole (*Microtus arvalis*) were the most important prey for the species in winter. Besides game species such as hare (*Lepus europaeus*) and ring-necked pheasant (*Phasianus colchicus*) were present in a few cases. These items could be occurred due to consume of carcasses as well. So we have found that the winter diet of steppe polecat contains a few of food items with the dominance of small mammals.

Type of presentation: Poster

Home range size and habitat selection of steppe polecat (*Mustela eversmanni*) in Northwest-Hungary

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An ongoing investigation is reported on the home range size and habitat selection by steppe polecats (*Mustela eversmanni*) living in an agricultural landscape with forest belts in Northwest-Hungary. Four polecats (three males, one female) were marked with radio-collar and tracked for 1-4 months each, in autumn-winter-spring period of year. Individuals were monitored with diurnal and nightly locations, during12 hours continuous sessions. The home range size of polecats ranged from 127 to 468 ha with an average of 298 ha. The mean (±SE) home range size of males (354 ± 100 ha) was larger than that of female (127 ha), but it was not significant due to the small sample. Polecats preferred seeding- and stubble-fields of cereals, rape, corn meal and avoided plough-lands and forest belts. Open habitats were positively selected by the polecats. It can show that the agricultural cultivation has an important effect on habitat selection of steppe polecats.

Type of presentation: poster

First report of fossil mustelids from the paleogene of Hungary

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Before the recent discovery of the Máriahalom locality in the Mány-Zsámbék-basin (40 km to west from Budapest) no fossil carnivorans have been reported from the Hungarian paleogene (Paleocene to Oligocene period). The shallow marine sediments of the Mány Formation revealed a rich Late Oligocene vertebrate fauna and at least 26 taxa have been documented on the basis of hundreds of isolated bones and teeth. Beside sharks, rays, bony fishes, turtles, crocodiles, numerous birds, sirenian and artiodactyl mammals three carnivorans have been identified. Two of these taxa belong to Mustelida while the other is considered to be a basal ursid (Hemicyoninae). The material assigned to Mustelida is consisted of a very few specimens, including teeth, possibly skull fragments and a well preserved tibia. Both recognized mustelids are related to the early evolutionary lineage of the group, closely resembling two primitive Oligocene genera from Western-Europe: *Amphictis* and *Potamotherium*. *Amphictis* was a small-sized mustelid, originally described from the Upper Oligocene of Southern-France while *Potamotherium* was an otter-sized semiaquatic form, sharing only convergent adaptation with the Lutrinae. The tibia of this genus has also been identified from the locality, showing obvious indications of the aquatic lifestyle. *Amphictis* has already been included in the Procyonidae while others place it with the basal members of the Mustelida. *Potamotherium* is generally related to the basal most representatives of the group. The significance of these occurrences is given by the fact that the record of Oligocene mustelids is extremely poor in the eastern part of Europe.

Type of presentation: Oral

Real-time PCR techniques for species identification and sex-typing in mustelids

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In real-time PCR the amplification of the DNA product is detected by fluorescence using either SYBR-Green 1, a non-specific dye which binds to double stranded DNA, or sequence specific fluorescent probes. Real-time PCR has many advantages over other DNA based techniques for species and sex determination particularly in terms of ease of use, speed and sensitivity. The molecular ecology group at WIT is using real-time PCR for a number of applications. The technique has been used for identification of scats for the National Pine Marten Survey of Ireland and for the rapid screening of scats to eliminate fox from scat surveys of a number of forests in England and Wales. A real-time PCR method has also been developed for sex-typing pine marten from hair and scat DNAs. This method uses X and Y chromosome specific Taqman-MGB probes based on highly variable intron regions of the ZFX and ZFY genes. In this presentation an overview of our pine marten research will be presented and the application of real-time PCR to these studies will be discussed.

Type of presentation: Oral

Monitoring small carnivores in France: a simple method using sightings of national wildlife protection officers along roads

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Since 2001, National wildlife protection officers are asked to fill up notebooks with small carnivores observations they made during their work. The data are registered at the locality scale, i.e. the smallest administrative unit in France. With this very simple method, more than 42000 sightings of small carnivores- dead or alive- were collected from 2001 to 2005 all over France.
Stone martens (*Martes foina*) and badgers (*Meles meles*) are the more frequently observed species in France, followed by pine martens (*Martes martes*) and polecats (*Mustela putorius*). In five years, sightings have been collected over 40 % of the localities in France, assuring a good coverage of the country.
After 5 years, this monitoring allows us to draw national map of presence of stone martens, pine martens, polecats and badgers. For least weasels (*Mustela nivalis*) and stoats (*Mustela erminea*), the number of sightings is still insufficient and a ten-year window may be necessary to get maps of presence. Nevertheless, for each species, between 13 and 16 % of sightings were collected on new localities in 2005, so that maps of presence are growing. For cryptic species like wildcat (*Felis sylvestris sylvestris*), genet (*Genetta genetta*), otter (*Lutra lutra*), american mink (*Mustela vison*) and to a lesser extent european mink (*Mustela lutreola*), raccoon (*Procyon lotor*) and raccoon dog (*Nyctereutes procyonoides)*, this easy monitoring is useful to assure a complete collect of the sightings. However, for these species, more specific enquiries are needed to study national distribution. According to the various utilizations of distribution maps, possible improvements of this monitoring are discussed as increasing the number of observers, using different kind of data and getting GPS data.

Type of presentation: Oral

Mustelid ecology and conservation in Portugal: an overview and new challenges

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Mustelids encompass more than 50% of the carnivores in Portugal and most occur north to south. Exceptions are *Mustela erminea* and *Martes martes*, in the fringe of its west European range, and the introduced *Mustela vison* still confined to the NW corner but showing a quick expansion trend towards south.
Most are of Least Concern, including the menaced otter, and only a few were tentatively classified as Data Deficient on the basis of a suspicion of rarity, population fragmentation and/or a decline trend; these are the stoat and *Mustela putorius*.
Besides an empirical knowledge about each species range, except for the otter, little is known about their requirements and habitat associations. For most no information is available and knowledge exists for a few mostly about their food habits and habitat use; these are the stone marten, the badger and the otter. This review focuses attention in the published ecological information, available for decision makers and researchers concerned with species decline and biodiversity loss, and known research projects.
None species is allowed to be hunted, but several are illegally captured and killed in the frame of non-selective predator control activities in game estates that nowadays cover most country. Moreover, emerging threats, such as the increasing road network and related mortality deserve to be investigated. These are new challenges, together with a need of habitat suitability assessments, which will help to set up research priorities and define conservation needs once there is growing evidence that human activities strongly and negatively affect mustelids.

Type of presentation: Oral

EuroNerz e.V. – actions for conservation of the European mink (*Mustela lutreola)*

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EuroNerz e.V. is a German non-profit association engaged in conservation of the endangered European mink *Mustela lutreola*. With a breeding stock of roughly 80 individuals it participates in the European Endangered species breeding Program EEP for this species.
With a new concept, we combine breeding and educational work: following a centralized mating done by EuroNerz e.V., pregnant females are loaned to member institutions like zoos and game parks during the period of pregnancy and cub-rearing. In autumn, EuroNerz e.V. ensures the takeover and placement of the offspring and provides single individuals for presentation during the winter/spring period.
With their numerous visitors, these institutions act as strong multipliers for dissemination of information on this highly endangered but almost unknown species. On the other hand, the zoos profit by the offer of know-how and the participation in an EEP project without (1) the necessity to keep higher numbers of individuals offstage or (2) problems with the placement of cubs.
With individuals deriving from our breeding stock, we support reintroduction programs. In 2006, such a project initiated by EuroNerz e.V. and conducted with several cooperative partners started in the federal country *Saarland* in south-western Germany.
In addition knowledge on behaviour and ecology of the European mink is still insufficient, complicating effective measurements for *in-situ* and *ex-situ* conservation. Therefore, EuroNerz e. V. supports studies especially on the reproduction behaviour and behavioural ontogeny of *M. lutreola*. For this, we cooperate with Dr. Elisabeth Peters and Prof. Dr. R. Schroepfer, Dept. of Ethology/University of Osnabrueck.

Type of presentation: Poster

Methods for measuring foraging success of Eurasian otter *(Lutra lutra)* in a shallow river

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Different methods for evaluating the hunting success of Eurasian otter feeding on fishes in shallow waters are discussed in terms of their practicality, accuracy and efficacy. Measurements based on numbers of dives and emergences with prey are not preferred, because this does not reflect the natural behaviour of a hunting otter in shallow water.
Hunting success can be expressed as the proportion of successful fishing actions, or diving sessions during one hunting session, or for given unit of time. During a particular fishing action, a hunting otter regularly dives several times, because locating and pursuing a fish in shallow water take some time and energy. In this study, each phase of a separate fishing action is described. In the case of a predominantly sedentary prey, where there is no regular pursuit of the prey, or when feeding in deep water, a different hunting behaviour is used.
A more universal method of measuring feeding success can be based on the collection of data on the total energetic value (weight of biomass) of prey caught and handled. This method has a limit to its accuracy in the estimation of length (weight) of each fish, especially when collecting data in the field, with respect to wild otters.
However, with this method, it is not so important detect separated fishing actions, due to the calculations of total biomass or calorific value of the prey per time (hunting session). On the other hand, it is necessary to obtain a representative sample of the prey inhabiting the given fishing patch locality, because knowledge of their quality and quantity is needed. Much practice and experience is needed for the accurate determination of fish length, respective weight of each prey, based on detailed information from the fishing patch.

Type of presentation: Oral

Is it worth doing detailed identification of invertebrate species in carnivores' diet analyses?

Skalski TOMASZ, Izabela WIERZBOWSKA, Maria Jao SANTOS, Luis Miguel ROSALINO, Margarida SANTOS-REIS and Maria ESKREYS-WÓJCIK

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Numerous studies highlight the presence of invertebrates in the diet of some opportunistic feeders, such as canids and mustelids. Yet, their identification is usually done to a fair extent and to higher taxonomic groups e.g. family or order. We believe that a great deal of high value information is therefore lost, in particular because different species of invertebrates prey may have strict habitat requirements and play different functional roles in ecosystems. The main aim of our investigation was to assess the importance of obtaining more detailed information on invertebrates' analysis in faeces of martens (*Martes foina, Martes martes*) and foxes (*Vulpes vulpes*). The samples were collected in Poland and Portugal, and the total number of analysed faeces was 1,259. The samples from Poland were identified to genus level and those from Portugal to family level. The consumption of invertebrates by those predators was compared by forward selection of canonical correspondence analysis, using several independent biophysical variables (e.g. mean temperature and precipitation, carnivore species, etc.). Coarser identification of invertebrates from Portuguese samples revealed that the diversity of invertebrates was described by two significant factors: (1) mean temperature (λ=0.17 Monte Carlo Test F=16.1, P=0.002) and (2) mean precipitation (λ=0.03 Monte Carlo Test F=3.3, P=0.004). However, factors as carnivore species did not contribute to explain the sample variance. On the other hand, finer identification of invertebrate species from Polish samples showed that carnivore species described the highest proportion of explained variance (λ=0.57 Monte Carlo Test F=3.9, P=0.002). In previous studies, we proved that though foxes and martens were opportunistic feeders they chose significantly different insects assemblages. Furthermore, while doing only rough identification to order or family we loose significant information and we could not find those discrepancies in our analysis.

Type of presentation: Poster

Elaboration of conservation programme of endangered European mink (*Mustela lutreola*) in Poland

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In many cases not lack of interest, but lack of knowledge about present situation or even past status of endangered species is the biggest problem in they protection. The European mink (*Mustela lutreola* L., 1761) is a good example. Nowadays, this semi-aquatic, riparian, only endemic small carnivore species in Europe is assumed to have become extinct in Poland and is catalogued as endangered species in generally. Nevertheless, Poland, and many other European countries does not have, and never had a conservation programme of European mink, also because of lack of public awareness of its endangered status. To change this situation, efforts to elaborate such programme for Poland have been undertaken. The goal of this programme is to conserve a gene pool of European mink at present and recover its populations in Poland in the future. To meet this goal a number of actions, gathered in five areas, have to be taken up: 1. education and public awareness rising (demonstration a necessity, validity and ability of partially extinct species conservation and restitution), 2. habitat protection and restoration, 3. actual species conservation (conservation of the gene pool, captive breeding and reproductive technology, preparation the background for reintroduction, recognition the European mink as an umbrella species), 4. monitoring of American mink's (*Mustela vison* Schreb., 1777) feral population (cooperation with national forest service and hunters associations), 5. research on the species biology (mainly genetic and population ecology). The programme's draft currently wait for consultations and revision on national as well as international level.

Type of presentation: Oral

The influence of the Czorsztyn dam reservoir construction on the otter (*Lutra lutra*) diet

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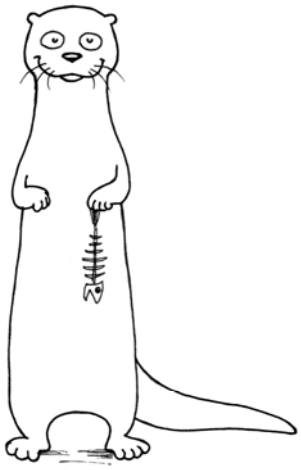
The Czorsztyn Reservoir was created in 1997 by the construction of a dam on the Dunajec river in the Pieniny Mountains. This investment met a strong oposition from the very begining due to potential impacts on valuable natural environment of surrounding area. The research studies conducted in this region show that the Czorsztyn Lake and its surrounding is not in an ecological equilibrium yet. Especially the development of the ichthyofauna is a subject to dynamics. This situation may influence those carnivores which use fish as a main fraction of their diet. In order to estimate the influance of the Czorsztyn dam construction on diet of the otter (*Lutra lutra*) in the Pieniny area and the fraction of these fish species in this carnivore's food, which appeared in the Dunajec and associated tributaries after the dam construction, we collected scats at established sites around the Czorsztyn Lake and along the Dunajec river and its tributaries above and below the dam. In both reservoir and tributaries fish was the main prey, and cyprinids were of particular importance. Not only they occured in the highest number of scats but also they were found in scats collected at every site.
The lowest variation in the otter diet was observed in sites located around the Czorsztyn Lake, consisted mostly of cyprinid species, perch *Perca fluviatilis* and pike *Esox lucius.* The most diverse diet was found in sites located at Dunajec river above the dam, consisted of seven fish taxa and significant percentage of amphibians.

Type of presentation: Poster



Monitoring and assessment of conservation status for European otter (*Lutra lutra)* in Denmark

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A national programme for systematic monitoring of species – including the European Otter – is running in Denmark for the period 2004-2009. The primary aim of this programme is to fulfil the national obligations according to the European Economic Community Habitats Directive on the Conservation of Natural Habitats and Wild Fauna and Flora (Habitats Directive). The purpose of the species monitoring is to procure knowledge about the individual species range, population size and size of habitats to make it possible to assess conservation status – and thereby clarify the need for conservation measures. Criteria/reference values for favourable conservation status (FCS) for the otter have been developed to ensure that FCS for the species on the appendix of the Habitats Directive can be maintained, or restored.
The recovery of the otter in Denmark since the 1980s was described by four national field surveys in 1984-86, 1991, 1996 and 2004 following the standard otter survey method, and by the geographical distribution of otter carcasses collected in 5-year periods prior to the field surveys. The national survey carried out in 2004 showed, that the otter since 1991 has extended its range with app. 260% reflecting an increase in population size as well. Conservation Status for the otter is therefore now considered favourable in the western, Atlantic Zone of Denmark.

Type of presentation: Poster

Geographic variation of cranial morphology of the Japanese weasel *(Mustela itatsi)*

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We investigated geographic variation of cranial morphology in the Japanese weasel *Mustela itatsi* from 11 localities in Honshu and Sadogashima Island, Japan. Univariate and multivariate analyses were conducted based on 45 measurements. Overall size variation seemed to follow a clinal change correlated with the latitude and longitude of localities (except in two populations), such that the skulls of northeastern populations were larger than those of southwestern ones. The northernmost (= Northern Tohoku) population and a population from central Honshu (Southern Nagano), however, did not follow the cline in having considerably smaller size than expected from the regression line. In canonical discriminant analysis, 3 groups were recognized: 1, the westernmost population; 2, populations from Kanto plain and southern Tohoku; 3, other populations consisting of the Northern Tohoku and Sadogashima populations, and populations from central Honshu. Groups 1 and 2 had a longer mandible and a shorter lower toothrow than group 3. Group 1 was different in having a shorter upper toothrow and a narrower upper fourth premolar than group 2. Furthermore, morphological differences among populations were observed in group 3, although the ranges of variation were highly overlapping: the Sadogashima population and the Northeastern Aichi population had a shorter upper toothrow and a narrower upper fourth premolar, and the Tamba population had a wider rostrum and a longer mandible. We discuss the geographic pattern in relation to environmental and isolating factors that are specific to the islands and that have acted on *M. itatsi*, an endemic mustelid species in Japan.

Type of presentation: Poster

The presence of different parasites in Stone marten (*Martes foina*) living in urban areas

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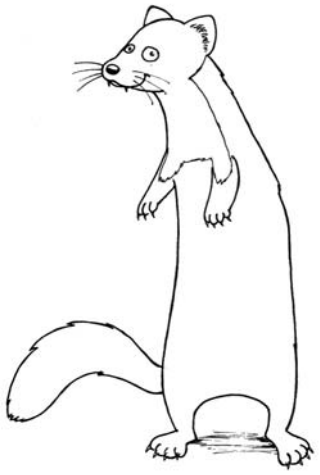
The special environment, food sources and hiding places in cities attract carnivores too where they can meet and interact with each other and with other species. Those carnivores that sometimes visit or live in urban habitats may be the vectors of numerous diseases that are hazardous for humans and their domestic animals, too.
The most eye-catching dangers for health in cities are the scats left by stray pets (cat, dog) and by urbanized carnivores (red fox, stone marten, etc.) Scats might contain the eggs of various helminths and round-worms that may infect people randomly and the evolved malady can cause blindness or it can be fatal. The eggs of these parasites are so small, that can't be seen by eyes, but they might be anywhere where infected animals occurred (for example in parks, playgrounds, sand boxes). In this case a stone marten that moved to an attic of a dwelling-house might become a potential health hazard. The presence of different parasites in stone martens living in urban habitats is barely studied. The role of stone martens in hosting and spreading parasites is not cleared yet.
We collected stone marten scats from different attics of dwelling-houses from different part of Hungary (Gödöllő, Budapest, Bánk, Hajósszentgyörgy, Miskolc-Tapolca). We used the so called flotation method to detect parasite eggs from scats. From the examined 378 samples we could prove the presence of *Capillaria aerophila*, *Trichuris* sp. and *Toxocara* sp. in urban stone martens.

Type of presentation: Oral



Historical biogeography of the Stone marten (*Martes foina*) in the Carpathian basin: an overview

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The widely distributed Palaearctic species, the stone marten is generally regarded as a Pleistocene immigrant from the Middle East. This species appears to be, according to the paleontological data, almost completely absent from the Carpathian basin through the Pleistocene (with the exceptions of two records from Hungary and Romania) while after the Würm age it displays a rapid and successful radiating dispersion. Previously, neither detailed studies focused on the identification of this species in the Carpathian Pleistocene fauna nor on its difficult distinction from the pine marten (*Martes martes*) in the fossil collections. Our poor knowledge on the paleobiogeography of *M. foina* may be related to the lack of this important aspect in previous studies. Nowadays, *M. foina* is the best adapted and urbanized, widely distributed mustelid carnivore of the Carpathian basin. Our hypothesis is that there were at least two key factors which gave the opportunity to the stone marten to get this state after the Ice Age. Firstly, instead of shrinking towards South and South-East, the species should have numerous smaller refugia even in the Carpathian basin, despite the missing fossil data. At second, due to its wide habitat usage, it had increasing connections with the human populations which led to its successful urbanization. The major aim of this review based on a wide range of publications is to locate these refugia. Our plan is to revise the fossil records using morphometric and paleontological methods to confirm or question the presence of the stone marten in the Pleistocene Carpathian fauna. The results may serve interesting new aspects concerning the historical biogeography of the species.

Type of presentation: Oral

Hystopathological examination of tumours in ferrets and the consequences of delayed angiogenesis

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The major goal of the project is the examination of tumor formation in ferrets induced by surgical castration before their sexual maturity. In the course of the project the first step will be the surgical removal of the tumour by our cooperating partners at the Veterinary University (Budapest) with the permission of the owner. After macroscopic analysis (size, photography), one portion of the the freshly resected tumor tissue will be minced into small (≈ 2x2 mm) pieces, digested for 3 h at 37ºC in collagenase medium. The mixture will be filtered through sterile gauze, washed, nonadherent cells discarded and adherent cells subcultured. The primary cell cultures will be grown further, and new tumor cell lines will be established. Another portion of the tumor will be frozen in liquid nitrogen, 60 μm thin cryostate sections will be cut in the sagittal plane and used for microscopic examination (hematoxilin-eosin staining for light microscopy, and electronmicroscopy for the examination of cellular structures, angiogenesis under hypoxic conditions). The tumor cell lines will be used for testing their *in vitro* sensitivity against chemotherapy under cell culture conditions. In case one or more antimetabolites turn out to be efficient drugs against tumor cell growth in cell lines isolated from tumors of different ferrets we will try to prevent tumor formation *in vivo* after surgical castration by preventive chemotherapy. These results are likely to have an impact not only on other animal tumor treatments but also on human cancer therapy.

Type of presentation: Poster

Occurrence of adrenal gland disfunction in the Hungarian ferret population

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In Hungary the cancerous disease of the adrenal glands occurs in about 30 % of the western ferret population. As the tumor grows in the adrenal gland it is logical to assume that the tumor is of hormonal origin. One of the possible hormonal factors contributing to the development of adrenal tumor formation could be the altered function of the pineal gland (*corpus pineale*) due to the indoor keeping of the ferrets. The lack of daylight causes the overproduction of melatonin, a hormone related to sleep that is produced in the pineal gland. To the contrary ferrets kept indoor are likely to get more artificial light which is likely to cause reduced production of melatonin. The repeated swith on and off adrenal gland's hormone production and is likely to influence the reproductive cycle. To test the validity of the hormonal hypothesis of tumor formation:

a) the frequency of adrenal gland tumor formation in ferrets living indoor or outdoor will be supported by statistical data,
b) experiments will be designed to measure hormonal levels before and after surgical castration,
c) the type of tumors will be determined,
d) melatonin therapy will be used to prevent tumor formation.

That this hypothesis has some basis is supported by human experiments indicating that melatonin is not only a regulatory factor of the biological clock, but also a defender of health, while reduced level of melatonin may cause cancer. In addition melatonin helps the immune system to defeat infections, and contributes to the natural regeneration process after injury, or illness. Moreover, melatonin implants are known to be involved in cancer treatment.

Type of presentation: Poster

The conservation and possible hybridisation of the Marbled polecat (*Vormela peregusna ssp. peregusna*)

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The European marbled polecat (*Vormela peregusna ssp. peregusna*) is a race red listed by the International Union for Conservation of Nature (IUCN) belonging to the vulnerable (VU) category of endangered species. Our objective is the ex situ conservation of the marbled polecat, by removing part of the population from the threatened natural habitat and placing it in a new location, to preserve and propagate this vulnerable subspecies. The expectations are:
the reduction of wildlife entrapment,
- to gain new information to help the successful survival of this race,
- to reposit captive-bred animals in zoos (sponsorship, propagation),
- to carry out mother substitution and embryo-transfer experiments.

Perspectively the project has a recreation and a hybridisation program. The first one starts when we prepare the offspring of the Hungarian animals with an identifier chip for wildlife. The second one could be the joining to the European bison's (*Bison bonasus*) hybridisation project and contribute to the production of hybrids between different species within the same genus, by interspecific hybrids or crosses.

Type of presentation: Poster

Fox and martens – are they really opportunistic feeders? A case of occurrence of insects in carnivores' diet

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The main goal of the investigation was to assess and compare insects' abundance in diet of fox (*Vulpes vulpes*) and martens (*Martes martes, Martes foina)*. The research was carried out in three national parks and in the city of Kraków, all located in the southern Poland. The collection of carnivores' faeces took place between 2002 and 2006. The total number of samples was 517 for foxes and 742 for martens. 59 insects species were recognised in 19% of samples. Forward selection of canonical correspondence analysis revealed factors that were carnivore species, place of collection which both described 89% of variance of insect species environment relations. Martens as a variable seemed to be the most influential on the composition and relative abundance of all insect assemblages (Monte Carlo test $F=3.94$, $P<0.001$). Moreover, the place of collection was an important factor (Monte Carlo test $F=3.03$, $P=0.002$ and $F=2.18$, $P=0.002$, respectively for Kraków and the Tatra Mountains). Martens fed most often on nest insects species such as *Forficula* sp., *Myrmica* sp, and *Vespa* sp., whereas foxes chose large beetles such as *Liparus* sp., *Carabus* sp., *Monochamus* sp., and *Geotrupes* sp. The diagram of canonical correspondence analysis confirmed that distribution of specific groups of arthropods depended on carnivore feeder as well as occupied habitat. Whilst, the detrended correspondence analysis indicated that there was lower variation of arthropod assemblages among carnivore species (foxes and martens) than in habitat types. Our results confirmed previous observations on carnivores' food habits with regard to insect presence.

Type of presentation: Oral

Optimizing habitats for weasel populations (common weasel and stoat)

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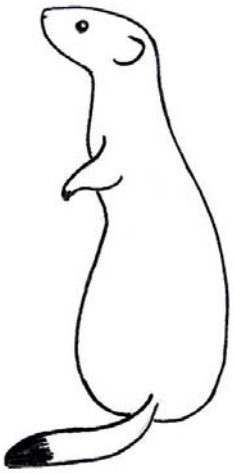
In the lowlands of Switzerland, the populations of common weasels (*Mustela nivalis*) and stoats (*Mustela erminea*) probably decreased during the last decades. (No exact data available.) The common weasel is listed on the red list. In 2005, we started a pilot project to optimize living conditions for weasels. The goal of this project was to promote the populations of these species as a whole, and not just to improve isolated parts of their habitats. The theoretical basis of the project is seen in the metapopulation concept. First, we chose a partly isolated space where we assumed the populations of both species were suboptimal. Secondly, we analyzed their situation: size of space, quantity and location of habitat patches, general habitat situation (matrix), the network of paths. Thirdly, we optimized the habitat situation in some potential habitat patches by supplementing essential resources to achieve an optimal mosaic of meadows with voles, hiding sites (piles of branches or stones) and hunting grounds with covering vegetation. Finally, we optimized the most important connections between patches. The measures we used were, for example, realizing new hiding sites, hedgerows, covered ditches, fallow land and constructing passages enabling the animals to cross streets and canalized brooks. Now, we are examining whether the optimized patches and the new hiding sites are accepted by the animals. Preliminary results: all the patches and 78% of the new hiding sites were already visited by weasels.

Type of presentation: Poster



Population size, occurrence and harvest of badgers (*Meles meles*) in southwestern Poland during 2004-2007

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The study area includes 166 000 km^2 out of which 33.6 % are forest habitats managed by 33 Forest Districts. Game management in 360 hunting districts is supervised by the Regional Directorate of State Forest in Wroclaw and local forest districts. Data used in this paper are official reports of hunting club regarding population size and number of harvested badgers. In 2007 according to quessestimate by hunters there were 3839 animals in the whole study area i.e. 2.34 individuals per 1000 ha. The highest population density ranged from 2.59-2.61 was found in foothills and lowland landscape respectively. This type of landscape is characterized by mosaic of small size forests and farmlands. The lowest population density (1.35 animals/1000 ha) occurred in large complex of lowland coniferous forest "Bory Dolnosląskie". In Sudety Mnt. and Valley of Barycz density of badgers varied from 2.14-2.16 individuals/1000 ha respectively. In 21 Forest Districts occupying lowland habitats, percent of forest and composition of dominant tree species influenced upon population density of badgers.

The percent of forest habitat in the forest districts was negatively correlated with the population density ($r = - 0.619$; $p = 0.0001$). Analyzing relationship between percent of deciduous tree species in forest habitats and the population density positive relationship was obtained ($r = 0.546$; $p = 0.0104$). During 3 hunting seasons (2003/2004, 2004/2005 and 2005/2006) number of badgers harvested amounted to 374 animals (mean for 3 year period). Factors effecting upon occurrence and population density are discussed.

Type of presentation: Poster

Using remote cameras to monitor otters

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This paper demonstrates the use of remote camera traps to monitor the Eurasian otter (*Lutra lutra*) on the Isle of Skye, Scotland, UK. Such cameras offer a relatively easy method to monitor otters in the wild without causing disturbance.
For this study Wildview digital cameras were used and features on the cameras include multiple megapixle choices, video technology and time and date. All the data is saved onto a single memory card which can be examined back on the computer. The cameras are powered by 4 1.2V Ni- Cad rechargeable batteries which in summer conditions last 7 days and in the cold of winter 4 days.
The cameras were set up on a coastal section on the Sleat peninsula where we have been monitoring otters since 1994. The area has a healthy population of otters and on this Torridonian sandstone coastline the females have a home range of 4 km. The cameras were sited by freshwater pools and a regular area for grooming. The cameras were set up in April 2007 as part of the ongoing monitoring programme.
The questions we wanted to answer were:

- Activity patterns
- Breeding
- Intra-specific behaviour

Type of presentation: Oral

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