



In otter news.....

Cardiff University Otter Project Newsletter 2.

Welcome to the Cardiff University Otter project's (CUOP) second annual newsletter. This year has been packed full of conferences, new collaborations, paper submissions and interesting findings in the lab.

Lab results

To date, CUOP have received 2115 otters. We were eager to see what the 2000th otter had in store for us, only to find that it was a mink masquerading as an otter! The carcass was so badly damaged that it was an easy mistake to make and we conducted a *post mortem* anyway to add to our ongoing mink work.

The breakdown from our latest annual report is as follows:

Number received: 191

Sex: 61% male, 38% female, 1% unknown

Age: 49.2% adult, 36.6% sub adult, 4.2% juvenile, 9.9% unknown

Cause of death: The vast majority (86.9%) of otters received by CUOP died as the result of road traffic accidents. The next most common cause of death was drowning (4.2%). Half of those drowned were caught in crayfish or fyke nets. It is a legal requirement to fit otter guards on these traps. See the [Environment Agency](#) website for details. Other causes of death included emaciation (1.6%), electrocution on railway lines (1.6%), disease (1%), fighting injuries (0.5%), shooting (0.5%), and boat collision (0.5%).

Parasites

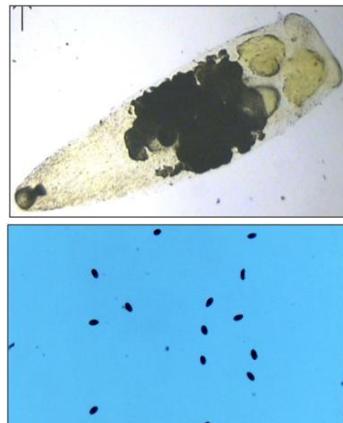
Biliary trematodes

PhD student Ellie Sherrard-Smith has been researching two parasitic trematodes,

Pseudamphistomum truncatum and *Metorchis albidus*, which infect hosts including the otter. A paper detailing factors that determine their prevalence and intensity has been submitted to

The International Journal for Parasitology. Ellie is also considering the impact of non-native species, such as the American mink, on the life cycle of these parasites.

The Cardiff Undergraduate research Opportunities Programme (CUROP) funded Cardiff graduate Alex Chinchen to work alongside Ellie on a project that looked at the fecundity and size of *P. truncatum* in otters and mink in Britain. The main focus was to compare the parasite fecundity within the native otter to that within the introduced mink. Differences between spatial and seasonal patterns in parasite



Pseudamphistomum truncatum
Above: adult phase; Below: eggs

prevalence and intensity were also considered and the team is working on a publication to report their findings.

Ticks

A recent publication in *PLoS One*¹ led by Ellie Sherrard-Smith considers how tick infections on otters are associated with climate and host factors. Only a single species infects the otter, *Ixodes hexagonus* (Ixodidae) and warmer and wetter conditions, synonymous with the positive phases of the North Atlantic Oscillation, are associated with high prevalence. Juvenile otters carry the most ticks - probably because of the length of time spent in the holt which is the questing location for this tick.

Toxoplasma gondii

Toxoplasma gondii is a parasitic protozoan that can infect all mammals including humans. The CUOP team is part of a focus group set up to investigate *T. gondii* in wildlife, domestic livestock and humans. Our first paper discusses the prevalence of *T. gondii* in the Eurasian otter and shows higher incidence in the east².

Two Cardiff undergraduates, Willow Smallbone (professional training year) and Thomas Allen (final year project) have made several visits to the Public Health Wales Toxoplasma Reference Unit (TRU) to learn specific skills in dye test methodology and microscopic interpretation. Whilst there they screened ~150 otter samples for the presence of antibodies to *T. gondii* and returned to Cardiff with the results.

This is a precursor to research that CUOP, in collaboration with the TRU, are seeking funding for - to consider the major routes of *T. gondii* into the human food chain. This is a clear demonstration of the value of a long-running project on wildlife such as CUOP and has specific applications for the improvement of human health.

Scent Communication

Congratulations to Dr. Eleanor Kean who has been awarded her PhD for research on otter scent communication. Eleanor's work showed differences in scent relating to age, sex and reproductive status. Eleanor has two additional publications from this work to submit: the first addresses the scent communication of individual identification and the second investigates differences in odour between genetically distinct subpopulations.



Dry culvert for wildlife passage
Jill Jackson

Mitigation

In 2011 the Trunk Roads Agencies in Wales funded CUOP to collate otter mortality location data, and

to identify priority sites for mitigation in Wales. Clare Wilkinson used both Environment Agency and CUOP datasets to produce a report for each of the three Trunk Road Agencies. These reports are now available on the new mitigation page of our website: <http://www.otterproject.cf.ac.uk/mitigation.html>

WILDCOMS

CUOP is now a member of WILDCOMS, a collaborative network between the various UK surveillance schemes that monitor disease and contaminants in vertebrate wildlife. WILDCOMS aims to: (i) provide a focal point for disease and contaminant monitoring in wild vertebrates (ii) provide an integrated overview of the health status of UK wild vertebrates (iii) facilitate collaboration between WILDCOMS network partners and (iv) facilitate identification of disease and contaminants of emerging concern. Quarterly newsletters are available from www.wildcoms.org.uk.

Conferences

2012 British Ecological Society Annual Meeting

Research Associate Dr. Eleanor Kean and PhD student Ellie Sherrard-Smith presented at the 2012 British Ecological Society Annual Meeting at the University of Birmingham. Eleanor gave a talk explaining the temporal and spatial trends in UK freshwater pollutants revealed by testing otter livers for contaminants. Ellie presented her recent work on parasitic biliary trematodes (described above).

Otters and Fisheries Conference

Eleanor also attended an Otters and Fisheries conference in Edinburgh run by the [International Otter Survival Fund](#) in November 2012. This conference was set up as a response to the concerns of the fishing community that increasing otter populations are damaging their livelihood. This one-day event invited representatives of the fishery community and scientists to come together to inform, advise, challenge misconceptions and explore options for the coexistence of otters and fisheries. Eleanor is now a member of a working group of stakeholders who aim to find ways of reducing the conflict.

In the public eye

Foxes Live: Wild in the City

Eleanor Kean appeared on 'Foxes Live: Wild in the City', which was aired on Channel 4 in May 2012. Here, Eleanor discussed scent communication in foxes.

Iolo's Great Welsh Parks

Eleanor also appeared on 'Iolo's Great Welsh Parks' shown on BBC1 Wales in January 2013. Eleanor searched the banks of the River Tâf for signs of otter activity to help Iolo catch an otter on camera.

Springwatch Guide to Otters

The Cardiff University Otter Project also contributed information to the Springwatch Guide to Otters, aired on BBC1 in December 2012.

Saving Species

Project manager Dr. Liz Chadwick was interviewed on BBC Radio 4's 'Saving Species' programme, talking about otter population recovery in relation to contaminants and the health of our rivers.

Countryfile

Rose Moorhouse-Gann will be appearing in the BBC's Countryfile on 24th February 2013, talking about the otter project and otters in an urban environment.

Recent Publications & in press

¹Sherrard-Smith, E., Chadwick, E.A., Cable, J. 2012. Abiotic and Biotic Factors Associated with Tick Population Dynamics on a Mammalian Host: *Ixodes hexagonus* Infesting on Otters, *Lutra lutra*. *PLoS One* 7, e47131.

²Chadwick, E.A., Cable, J., Chinchen, A., Francis, J., Guy, E., Kean, E.F., Paul, S.C., Perkins, S.E., Sherrard-Smith, E., Wilkinson, C., Forman, D. *In press*. Seroprevalence of *Toxoplasma gondii* in the Eurasian otter (*Lutra lutra*) in England and Wales. *Parasites and Vectors*

Team otter

There were some changes to the otter team in 2012: Eleanor Kean finished her PhD with CUOP and was appointed Research Associate, Sarah Paul left the project to start a PhD at the University of Exeter and Rose took over as Assistant Project Manager. This year the project also has Willow working as a Research Assistant for her Professional Training Year.



Team Otter.
Left to right: Dr. Eleanor Kean,
Ellie Sherrard-Smith, Dr.
Elizabeth Chadwick,
Willow Smallbone,
Rose Moorhouse-Gann

From February, Project Management will be taken over by Rose, while Liz is on maternity leave for 6 months. Eleanor has also just left to go on maternity leave, and we hope (funding depending!) she will be back in the autumn!

Thank you to our funders, finders and volunteers. If you are interested in volunteering or would like any further information, please contact Rosemary at moorhouse-gannrj@cf.ac.uk. You can also find us on facebook and follow us on twitter @Otter_Project.

