

EWDA E-zine

Health of wild

Amphibians | Birds | Fish | Mammals | Reptiles

Discovery of an Ebolavirus-Like Filovirus in Europe

A virus temporarily named the Lloviu virus, after a cave in Spain, was isolated from bats which were found dead in this cave. This followed a substantial die-off of bats in French, Spanish and Portuguese caves in 2002. scientific investigations by Spanish and US scientists found an Ebola-like virus in a number of dead *Minioterus schreibersii* bats but not in healthy bats collected from different geographic locations in Spain .



Ref.: **Negredo A, et al.** (2011) Discovery of an Ebolavirus-Like Filovirus in Europe. PLoS Pathog 7(10): e1002304. doi:10.1371/journal.ppat.1002304

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European section of the wildlife disease association bulletin

www.ewda.org

Significant events in Europe (year 2011)

This information is a subjective selection of events deemed important by the contributors.

Usutu virus has been found in mosquito batches analysed in Piedmont, North Western Italy.

Scabies is affecting chamois (*Rupicapra rupicapra*) in close proximity of the Brunner Pass (Austrian Alps). Doors are apparently open to further spreading towards Central Alps (as never happened before in more than two centuries of outbreaks).

Dermatitis of unclear etiology: multiple reports of Swedish bull moose (*Alces alces*) with deep suppurative extensive, mainly dorsal skin lesions.

Outbreak of rabies in the Svalbard Archipelago: Rabies was diagnosed in an Arctic fox (*Vulpes lagopus*) from Hopen in January and in three Arctic foxes and ten Svalbard reindeer (*Rangifer tarandus*) from Spitsbergen in the Svalbard Archipelago in September and October. The virus was of an Arctic strain.

CSF: After six years of vaccination performed at the scale of the whole infected region, Classical Swine Fever virus (Hog cholera) has not been isolated in France so far from wild boar (*Sus scrofa*). CSF is thus considered as successfully controlled in France. Surveillance is still on going up

to 2013, in order to support virus eradication status .

BT: Since 2008 evidences that BTV 1 and 8 have circulated among wildlife and more particularly in Red Deer (*Cervus elaphus*) in France have been collected. Surveillance of Red Deer is ongoing.

West Nile virus was detected by PCR in tissue samples obtained from a dead Great Tit (*Parus major*) and other birds in Greece. Virus circulation was, as well confirmed in Italy. In Greece recent studies have established that the genotype of WNV isolates are related with virus formerly typed in Hungary and central Europe.

BTB (*Mycobacterium bovis*) was notified in several regions in France in red deer and wild boars. Cases of BTB infections have been diagnosed in badgers (*Meles meles*) in several «département» where outbreaks have been also observed in cattle. Depopulation measures have been taken to prevent the installation of a wild reservoir.

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President's corner

Thijs KUIKEN*

Clouds blow across the dawn sky and intermittently hide the waning moon. The branches of the apple tree in my back garden wave to and fro in the strong wind. Fallen apples provide an new opportunity for blackbirds and slugs. They feast on the sweet flesh of apples that have split open on the garden tiles, a welcome change from their normal diet of earthworms and rotting leaves, respectively. I wonder whether all blackbirds and slugs have the same probability of detecting such a windfall, or whether some are better adapted to do so than others. Do the ones eating the apple have better eyes and a better sense of smell, or is it all just a question of chance?

Walking back into the house to prepare breakfast, I think about opportunities in the field of wildlife health. The field has changed considerably in Europe in the past years. The EWDA, started in 1993 as a loose-knit group of enthusiasts, now is a mature (well, more or less) organisation with a democratically elected board and conferences of more than 200 participants. The EWDA student chapter regularly

organize highly regarded workshops, where no such event existed just a few years ago. Several countries in Europe are developing new initiatives related to wildlife health: the Danish National Centre for Wildlife Health, the Belgian Wildlife Disease Society, the GB Wildlife Disease Surveillance Partnership, and the Spanish Wildlife Disease Surveillance Plan come to mind. Clearly, wildlife health is a growing field in Europe.

The growth of the wildlife health field goes hand in hand with increased knowledge and expertise. The increase in knowledge is reflected by the fact that next year, for the first time, we will have a book dedicated to the diseases of wildlife in Europe, "Infectious diseases of wild mammals and birds in Europe", whose editors are EWDA members. Increased expertise can be illustrated by the example of postmortem examinations on wild animals. I can remember a time when such postmortem examinations were performed by people (like me!) who had little specific training in the area. Nowadays, wildlife postmortems are more often done by people with a long and hard training in veterinary pathology. And, above that, more

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specific expertise is being developed in particular areas of postmortem examination, such as the use of forensic techniques, to which a workshop was dedicated at the last EWDA conference.

If we want to keep on playing a role and succeeding in wildlife health, we need to make the available knowledge and expertise in our particular area of interest our own. For example, at the last council meeting of the WDA, the editor of the Journal of Wildlife Diseases indicated that more manuscripts were being submitted to the journal than could be published. Therefore, he would be requesting the assistant editors to become more stringent in their reviews and select only the best manuscripts.

Despite the relative difficulty of obtaining funding to work on wildlife health, despite the current turmoil in Europe's finances, there are new opportunities. The world at large has become aware of the importance of wildlife as a reservoir of diseases for livestock and humans. Biologists and wildlife managers have come around to the idea that disease, instead of being of little significance to wildlife populations, is actually a driving force in their evolution. International organisations like the World Organisation for Animal Health are actively promoting the surveillance of wildlife diseases in member countries. If we wish to benefit from these opportunities, however, we need to sharpen our vision, and have our tentacles fully extended. It is a question of sweet fruit for breakfast, or earthworms and rotting leaves.

EWDA 2014: MEETING PROPOSALS NEEDED

EWDA Meetings are important to the EWDA...

We hope to make an announcement about the 2014 meeting location at the joint EWDA/WDA meeting, in Lyon, next July 2012.

Anywhere in Europe would be good! Eastern Europe, Western Europe, Southern Europe, Northern Europe, Central Europe – any of these would be good.

If you or your institute would like to propose hosting the 2014 EWDA meeting please contact Marc Artois, Paul Duff and Lisa Yon (EWDA Time and Place Committee) as soon as possible please...

Thank you Lisa, Marc and Paul

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Parasitic fauna of European ground squirrel in Greece



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The European ground squirrel (*Spermophilus citellus*) is distributed in Southeastern Europe in two main basins: Pannonian and Balkan. It is a small mammal categorized as vulnerable according to the IUCN. Greek populations can be especially important, as they are found at the periphery of the southern border of the range of this species⁽¹⁾. A survey regarding the parasitic fauna of this animal species in different populations in N. Greece is currently conducted. Up to date, 120 animals from 5 different populations have been examined for endoparasites. Faecal samples were collected from the entrances of burrows. Each burrow is used exclusively by one animal and therefore each sample corresponds to a single individual. All samples were examined by flotation and sedimentation method, while Ziehl-Neelsen stained smears were prepared and stored for the detection of *Cryptosporidium* oocysts.

As reported recently⁽²⁾ a high prevalence of *Eimeria* spp. infection was detected. According to our up dated results 118 of

the 120 (98.33%) animals examined excreted *Eimeria* spp. oocysts, belonging to various species (*E. callospermophili*, *E. citelli*, *E. cynomycis* and other two unidentified species). Recently, *Entamoeba* spp. was found in 30 (25%) animals and *Brachylaima* sp. in 5 (4,16%). Only few faecal smears for *Cryptosporidium* spp. have been examined till now, however the presence of the parasite is already recorded.

According to the international literature, *Eimeria* spp. seems to be quite prevalent in the genus *Spermophilus*. *Eimeria* is protozoan parasite that can cause enteritis of the small and large intestine and is more pathogenic in young animals. The high prevalence and often heavy infection with *Eimeria* spp. observed in our survey is implying probable clinical condition especially in juveniles. Despite the fact that a limited presence of the parasite is desirable in order to maintain the protective immunity in the population, our findings raise the hypothesis that this infection could be life threatening for juvenile ground squirrels, predisposing serious risks to the stability of the populations in the study area.

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The *Entamoeba* sp. cysts, interestingly found in morphologically good condition in very dry faeces, had a characteristic thick wall, described for *E. citelli*, a species found in ground squirrels. The presence of *Brachylaima* sp., a trematode of the small intestine in *S. citellus* is consistent with the consumption of snails that serve as intermediate hosts.



The European ground squirrel

The *Eimeria* and most probably the *Entamoeba* species found are exclusive parasites of *Spermophilus* spp., thus no expected risk for domestic animal and public health exists. However, genotyping of these species is planned for more accurate identification and the investigation of any probable genetic relation to species derived from other hosts. On the other hand, *Cryptosporidium* sp. and parasites of the genus *Brachylaima* may possibly affect other animals and human.

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- Diakou et al. 2011.** High prevalence of *Eimeria* spp. infection (...). **4rth Conference of the Scandinavian-Baltic Society for Parasitology**, Oslo, June 19-22, Proceedings pg 78.

Report on EWDA Board teleconference, 13 October 2011

A teleconference of the EWDA Board took place on Thursday 13 October 2011. There were discussions of different options for developing a bank account for the EWDA in Europe; it was agreed that the best option would be to set up an account as a limited non-profit foundation. Philippe Berny will do this in the next 6 months. Marc Artois will now be the permanent Accounts Officer, to ensure continuity in this office.

Elections for the positions of President, Student Activities and Student Representative will take place at the EWDA conference in Lyon next July. The nominations committee membership was proposed: Lisa Yon, Paul Tavernier and Ezio Feroglio.

250 euros will be offered to each of four students to attend the next EWDA meeting. Successful applicants will be selected based on their description of why they want to participate.

Marc reported on preparations for the joint EWDA/WDA conference in Lyon, France next July ; they are currently finding sponsors. The website now allows people to register for the call for papers; registration will open early January.

Thijs KUIKEN thanked Paul Duff and Marc for their continued work on the EWDA bulletins.

Karoly Erdelyi and Marie Pierre Ryser are translating the EWDA web pages into many languages from Eastern European countries. Karolyi is preparing powerpoint slides to be translated into Eastern European languages to advertise the EWDA at local conferences.

Paul , Marc and Lisa Yon are leading a 'time and place' committee to identify who will host the 2014 EWDA conference.

Thijs reported that the Google network is working well, and needs input from EWDA members. An article will be published later this year in an OIE technical bulletin on the setup of a European wildlife disease surveillance network.

Lisa YON

Progression of a distemper epidemic in Switzerland



Marie-Pierre RYSER-DEGIORGIS¹ & F. ORIGGI

During the first half of 2009, the front of a distemper epidemic reached the eastern Swiss border and rapidly spread towards the central part of the country. Numerous red foxes and Eurasian badgers were observed alive during the day time, often without fear of humans, sometimes also circling and trembling and/or showing signs of respiratory distress. Many others were found dead, most of them severely emaciated. A small number of stone martens, pine martens and Eurasian lynx were also affected. Although no cases were registered in wolves, the local hunting authorities described that signs of wolf presence in Grisons dramatically decreased and this suggested a possible role for distemper in this

process. Distemper was also diagnosed in a domestic dog previously vaccinated against Canine Distemper Virus (CDV), and the infection was shown to be caused by a strain very similar to those of foxes from the same geographical region during the same period, indicating that wildlife was most probably the source of infection.

Up to October 2011, cases of distemper have been recorded in 21/26 Swiss cantons, however, cases seem to be fewer and the progression of the epidemic front appears slower than during the previous year. Pathological changes associated with the infection and characterization of the involved CDV have been reported by Origgi et al. (1). The main pathological changes consisted of broncho-

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interstitial pneumonia and meningo-encephalitis with syncytial cells, intracytoplasmic and intranuclear eosinophilic inclusions. To date, both epidemiological and virological investigations are consistent with the spread of an epidemic front from eastern to western Europe, but data do not allow either to exclude the re-emergence of a

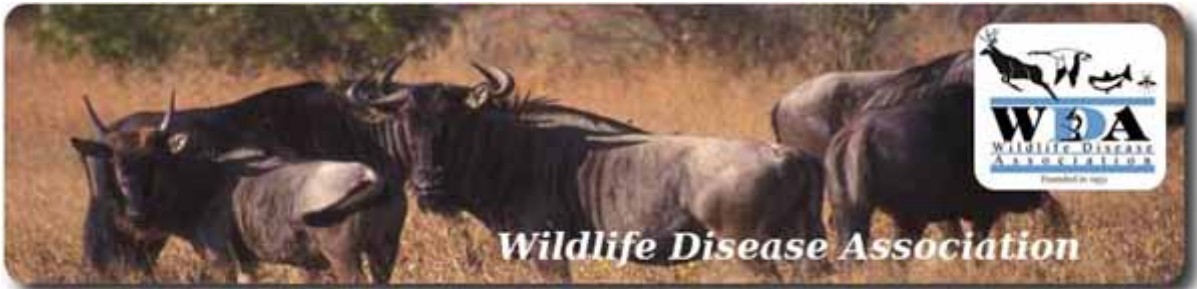


local strain.

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Suppurative blepharitis and conjunctivitis in a red fox affected by distemper



Ten reasons why you should join the Wildlife Disease Association

1. Free online access to the Journal of Wildlife Diseases
2. Free paper copy of the Journal of Wildlife Diseases if you wish
3. Contribute to better management of health of wildlife.
4. Access to contact information of world members in wildlife health
5. Reduced registration fees at meetings.
6. Access to student scholarship and awards.

7. Free access to programs and abstracts of recent meetings.

8. Free online research alerts on papers appearing in over 1000 journals.

9. Free online access to papers from over 1000 journals when cited in Journal of Wildlife Diseases papers.

10. Contribute collectively to electronic distribution of information on health of wildlife free of charge to more than 110 less economically developed countries.

To Join the WDA

Please print out the [Membership Form](#) and return to WDA Business Office or go to the [On-Line Business Site](#)

Finch trichomonosis spreads to France



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Trichomonosis was identified as an emerging infectious disease of British passerines in 2005 (Robinson *et al.* 2010) with subsequent spread to Fennoscandia in 2008 (Lawson *et al.* 2011; Neimanis *et al.* 2010) and northern Germany in 2009 (Peters *et al.* 2009). Here, we report the spread of trichomonosis to France. In May and June of 2010, mortality of multiple species including greenfinches (*Carduelis chloris*), goldfinches (*Carduelis carduelis*) and house sparrows (*Passer domesticus*) were reported by the SAGIR network* in eight sites and trichomonosis was suspected to be the cause on the basis of the characteristic gross lesions of necrotic oesophagitis and ingluvitis. In April to June of 2011, the first cases of finch trichomonosis in France were confirmed by two complementary wildlife disease surveil-

lance systems: the Wildlife Veterinary and



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Necrotic oesophagitis and ingluvitis in a greenfinch

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Ecosystems Center (CVFSE)** and the SAGIR network. Cases were confirmed in greenfinches on the basis of gross lesions (Fig. 1) and either the detection of motile trichomonad parasites in wet mounts of lesions (CVFSE's cases) or presence of intra-lesional flagellates detected using histology (SAGIR network's cases). Additionally, lesions were positive when tested using *Trichomonas gallinae*-specific PCR (conducted at the University of East Anglia (CVFSE's cases)) or at the University of Reims Champagne-Ardenne and at the Veterinary Laboratory of Manche (SAGIR network's cases)). Collaborative research is required to investigate the emergence and impact of finch trichomonosis on European wild bird populations.

*The SAGIR network is an epidemiological survey network, which aims to determine causes of wildlife mortality everywhere in France. It relies on the collaboration between the National Federation of Hunters (FNC) and the National hunting and wildlife agency (ONCFS).

**The CVFSE is a 25 years-old wildlife rehabilitation center and a research center on wildlife diseases since a few years. It is located in Nantes, at the mouth of the Loire river, on the West coast of France and deals with wildlife diseases in the North-West of France.

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Chemical immobilization of two greater white-toothed shrews (*Crocidura russula*) under field conditions



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Chemical restraint or anesthesia is often necessary when performing minor procedures on wild animals. Great caution is required in the handling of shrews because they suffer from high capture and handling mortality. Therefore, a safe and practical anesthesia with quick induction and fast recovery is necessary when immobilizing shrews in the field, with the intention to release them fully recovered. To the best of our knowledge, the combination of ketamine-medetomidine, and its reversal with atipamezole, has never been used in shrews. During May 2011, two female adults of greater white-toothed shrew (*Crocidura russula*) were captured using Sherman traps in order to collect samples (ectoparasites, urine, feces and

blood) during an ongoing study about zoonoses near Barcelona, Spain. The drugs were previously diluted 1:10 in physiological saline and administrated by intraperitoneal injection. The first animal received a dose of 17 mg/kg ketamine plus 0.17 mg/kg medetomidine and 2.3 mg/kg atipamezole. The second one received a dose of 21 mg/kg keta-



Crocidura asleep

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Shrew release

ently within the normal limits. Temperature was monitored and maintained with heating pads. Both shrews were reversed after 30 min of anesthesia. Total recovery was fast and smooth, lasting



Shrew Cardio monitoring

mine plus 0.21 mg/kg medetomidine and 2.7 mg/kg atipamezole. The induction was fast and smooth, being 1 min 28 sec for the first animal, and 38 sec for the second one. No complications were seen during anesthesia and the heart and respiratory rates were appar-

21 min for the first animal and 44 min for the second one. Both shrews were released fully recovered in the capture site.

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SPAIN: FLAVIVIRUSES IN WILD BIRDS



**Ursula HÖFLE*, A. V. GUTIERREZ-GUZMAN,
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Wild birds, especially migratory passerines are thought to be the main reservoir of most mosquito-transmitted Flaviviruses, of which the most well-known is West Nile virus (WNV). As such they are also both potential sentinels of WNV activity or potential victims of sporadic outbreaks.

1. West Nile and Usutu virus

WNV in birds in Spain has been documented by detection of neutralizing antibodies in both resident and migrant aquatic and passeriform birds in the National Park of Doñana, and also by detection of antibodies and genome in raptorial birds in south central Spain. Size and migratory behaviour (transaharian migrants) were found to be the two main factors that enhanced exposure to WNV. In contrast to the North American continent disease and mortality due to WNV has been detected only sporadically, mostly in Accipiter species from central Spain, namely the endangered Spanish Imperial eagle (*Aquila adalberti*), suggesting that this family may be more susceptible to developing disease

and less important as a reservoir. In fact, the first isolation of WNV in Spain occurred in 2007 from a juvenile Golden eagle (*Aquila chrysaetos*) that showed neurological signs and succumbed to a nonpurulent meningo-encephalitis.

Recent phylogenetic studies have shown that, in contrast to the general assumption of yearly introduction of WNV by spring migrant birds from Africa, WNV has been endemic in the Mediterranean Basin since



WNV infected golden eagle with photophobia

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at least 1996. Usutu virus has also been detected in mosquitoes but no associated to disease in birds.

2. Bagaza virus (BagV)

In contrast to the apparently limited importance of WNV and Usutu virus for birds in Spain, a related Flavivirus, Bagazavirus (BagV) that was detected in region of Cadiz on the Mediterranean coast in September 2010, was highly pathogenic for game birds such as the red-legged partridge (*Alectoris rufa*) or ring-necked pheasant (*Phasianus colchicus*), while currently no information is available for

other species. Primary clinical signs in the affected birds included ataxia, lack of coordination, apparent blindness and final lateral recumbency. Macroscopic and microscopic lesions were similar to what could be expected in infections due to WNV, with myocarditis and moderate nonpurulent encephalitis as the most important histological features.

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Crimean-Congo haemorrhagic fever virus in Spain and wildlife

Some few weeks ago the newspapers (<http://www.flutrackers.com/forum/showthread.php?t=175322>) reported the finding by Spanish scientists of Crimean-Congo Haemorrhagic Fever virus (CCHFv) positive *Hyalomma lusitanicum* ticks in southwestern Spain. Those ticks were collected on red deer (*Cervus elaphus*). The early results on the virus strain showed more similarity to African strains than to those circulating in south-eastern Europe and Russia.

The role of wildlife with respect to CCHFv epidemiology is currently poorly known. African large wild mammals have been proven to have been exposed to CCHFv through antibody

detection. European and African small wild mammals such as rats, mice, hedgehogs and hares are considered reservoirs since they establish an important viraemia that allows transmission to uninfected ticks. Most bird species are considered refractory to CCHFv with the exception of the ostrich (*Struthio camelus*) which has



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WildTech update

Duncan HANNANT ¹



Project background

WildTech (Novel Technologies for Surveillance of Emerging and Re-emerging Infections of Wildlife, supported by the European Commission under the Food, Agriculture and Fisheries, and Biotechnology Theme of the 7th Framework Programme for Research and Technological Development, grant agreement no. 222633) addresses the problem of the increasing prevalence of new and emerging diseases arising from wildlife. The objectives of the project are:

- The application of microarray technology for the detection of known infectious agents in wildlife populations, for the detection and identification of novel and unknown infectious agents in wildlife populations and to develop a high through-put serological screening of wildlife populations for infectious disease.
- The utilisation of these technologies to assess the spread of selected diseases (proof of concept) using historical samples and those collected during the project. We will monitor and model patterns of wildlife disease spread and the

risks associated with these changes. Ultimately this epidemiology framework will be used to reduce the risk of further potential epidemics by producing a generic action plan in case of emerging epizootics among wildlife.

- The development of a state of the art wildlife disease data management system with mapping capability for use in Europe and beyond.

Progress made so far

The project is going according to plan. The target pathogens and host species groups were specified. We are currently finalising the serology and nucleic acid assays that will be used for screening wildlife samples in the first half of 2012 to test the surveillance system. The epidemiological analysis of historical datasets is ongoing. The design of a model for quantifying emerging disease risks has commenced. Work has also begun on developing generic multi-host models of disease dynamics in wildlife communities. The sample availability for the evaluation of the arrays and for the model surveillance has been mapped. Procedures were established for efficient sample shipment. Data on the priority pathogens is continuously being added to the Wildpro® electronic encyclo-

¹ Contact on <http://www.wildtechproject.com/wildtech/node/13>

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paedia. The programming of a suitable database to store the data about the samples run on the project arrays is almost completed. It will comprise detailed data on the samples and their results with various techniques, which will be analysed by the team of epidemiologists. The Associate and Collaborative Partner meet-

ings have been very successful, and the pool of Collaborative Partners is constantly growing.



The WildList has a new home!

The WildList is a directory and a mailing list for people working on emerging and zoonotic diseases of wildlife. It began as a Special Interest Group under the Med-Vet-Net EU FP6 project and although the emphasis is on wildlife diseases in Europe, we have members from other continents as well. The Med-Vet-Net project has come to an end but the WildList lives on as a part of the WildTech (EU FP7) project.

The WildList resides on the WildTech website and can be reached using this direct address:

<http://www.wildtechproject.com/wildlist/>.

New members

If you have an interest in emerging and zoonotic diseases of wildlife, please join the WildList (use this form, registration is simple and quick: <http://www.wildtechproject.com/wildlist/join>).

Existing members

If you are already one of our 212 members (on last count in November 2011), we would like to ask you to check that your address details and research interests as reflected on the WildList website, are up-to-date (check on <http://www.wildtechproject.com/wildlist/members>).

In particular, this applies to all members from former AFSSA and VLA because of the recent name changes of those organizations. If you

need to change anything, please activate your login

...<http://www.wildtechproject.com/wildlist/user/password> or simply click on "Request new password" under the "User login" heading on the front page of the website. Then enter your email address (the one you used when you joined the WildList) and click on the button below the form. A link containing a temporary password will be sent to your email address.

Remember that the email address you used to sign up will be your login/user name and that you will have to choose a password to go with it when you first log in.

Once logged in, you will find your details under "My profile" near the top of the page. If you have trouble activating your login, you can always contact us using the contact form on the website. We will help you activate your login or even make the required changes for you.

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WILDTOOL

Paul Tavernier*



“Wildtool” is an electronic risk assessment tool for pathogens originating from wildlife. It was developed within the frame of the WILDSURV project, granted by the Belgian Federal Public Service of Health, Food Safety and Environment (project n° RT 07/5). “Wildtool” is a semi-quantitative system, allowing to rank pathogens in function of their risk and their need for surveillance in wildlife, and using a first line approach, the “hazard identification” including a broad range of pathogens. It offers a maximal flexibility to the users who can select their own parameters for prioritization of pathogens according to their responsibilities (public health, domestic animal health, economy of livestock breeding, conservation and wildlife management). These choices include a target group (humans, companion animals, production animals, or wildlife itself) susceptible to the pathogens, a Belgian region (Flanders, Wallonia, Brussels region, or Belgium), a set of “weights” for the different criteria determining the prioritization (i.e. the relative importance the end users attach to the criteria), and a first or second level of ranking (see below).

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Starting from a broad literature search, qualitative and quantitative scores are assigned to different criteria (concerning host and vector presence, transmission characteristics, impact, occurrence), according to the elements of a standard risk evaluation following OIE standards. These elements are the release assessment, the exposure assessment and the consequence assessment. The prioritization result is presented as a list of pathogens ranked according to their total scores. The uncertainty is expressed as the relative amount of “unknown” information for each pathogen.

The second level ranking uses additional qualitative and quantitative data for the release assessment, namely population data of wild animals known as hosts for the different pathogens, and reported occurrences in Europe for each pathogen. Population data of all mammal and bird species known to occur in the wild in Belgium are included in the database, lower vertebrates are not included as yet. Pathogens prioritized in the first level ranking that reappear in the second level ranking, i.e. those with also a high “release” potential, are the ones to be considered with priority for targeted active surveillance. More pathogens from the first level ranking list could get a higher rank in the 2nd level ranking list, but due to the scarcity of data about many wildlife pathogens, a re-

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data about many wildlife pathogens, a refined release assessment is often not possible. Therefore a good organized passive surveillance network, mainly to detect "occurrences" of pathogens in wildlife is very important to provide data for a refined release assessment.

The current version of Wildtool is a prototype, and was developed for the Belgian situation. Depending on specific objectives, substantial programming adaptations will be required for other uses (p.e. for larger countries or for Europe as a whole). Furthermore, it is essential to update the data contents continuously by a team of administrators in order to obtain a realistic image of the situation in the field. Therefore the support of governments or (supra)national organizations is essential to maintain the system as workable, as such a "real time" system starts to get

outdated very soon after the last data input (at the end of the project).

Prioritisation results can be compared with identified networks for sampling and diagnosis, allowing to recognise surveillance gaps and to suggest improvements.

Reference

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been involved in the transmission of CCHFv to abattoir workers. Domestic ruminants have been found to be effective reservoirs that may maintain viraemia for up to a week and allow ticks get infected. This finding increases concerns as to whether large wild ungulates may also develop a transient viraemia. Additionally, an experiment with birds showed the transmission of CCHFv to uninfected ticks in spite of the lack of viraemia in the host, demonstrating the possibility of nonviremic transmission of CCHFv, as occurs with the Tick-borne Encephalitis virus through ticks *co-feeding* on the host. This finding also increases concerns on whether nonviremic transmission could also occur through ticks *co-feeding* on uninfected

wild mammals. Wild ungulates in Spain are effective reproduction hosts of the tick species that transmits CCHFv. Further research will be necessary to prevent the establishment and spread of CCHFv. Surveillance on both the vector species and the virus is taking place.

Francisco RUIZ FONS



The Nile monitor (*Varanus niloticus*) an indicator species for pollution in sub-Saharan wetlands



Alexandre CILIBERTI¹, P. BERNY¹, V. de BUFFRENIL²

In Africa, metal and pesticide contamination of wetlands is supposed to continue on a permanent basis. However, the ecotoxicological status of these ecosystems remains poorly documented. The aim of the present work is to assess the value of the Nile monitor (*Varanus niloticus*) as a sentinel species for the environmental contamination of continental wetlands in sub-Saharan Africa. Lead and cadmium¹ on the one hand, and organochlorine and organophosphate pesticides² on the other, have been quantified in several tissues by atomic absorption spectrophotometry and gas chromatography, respectively. Samples come from 71 specimens originating from four sites considered unequally contaminated:



i) a large city, Niamey; ii) an agricultural area, the region of Diffa (both in Niger); iii) the site of Niono/Molodo, where important quantities of obsolete pesticides have been stockpiled for several years; and iv) the small village of Flabougou, the reference site (both in Mali). Although clear differences appear between sites, the environmental contamination turns out to be moderate at the four locations, and does not seem to represent a significant danger neither for the monitor lizards themselves, nor for occasional human consumers. However, the interindividual variability is important. The organotropisms relative to the detected pollutants are consistent with those described in previous studies. Concerning the pesticides, no gender effect has been

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found, whereas females were more contaminated by metals. The relation between other factors (size, proportion of fat) and tissue concentrations has been considered too. Nile monitors can reveal subtle differences in local pollution and the spatial resolution of this tool seems to be very sharp. Its practical relevance is thus validated. Additionally, non-destructive indices have been developed and an experimental work has been carried out on captive monitors to go into the subject in greater depth.

Annual WDA conference of the Australasian section *

Coorong, Australia, September 2011:

Typically avoiding big cities the recent annual conference was held at a campsite at the Coorong, a beautiful national park at the mouth of the mighty Murray river near Adelaide. The Australasian section is comparably small. Hence only about 60 people attended the conference. These five days were filled with a big variety of talks just as plenty of other activities. The atmosphere as informal and cordial made it easy even for professors and students to talk to each other and build up social networks. Most talks concerned topics dealing with native wildlife:

The devil facial tumor disease (DFTD) in Tasmania: Research is desperately going on about finding a treatment or at least a vaccine. The free ranging population is about to get extinct. The Hendra virus: Spread by birth products of flying foxes the season with a high risk of outbreaks amongst humans and horses was about to start. Developing a vaccine as well as the

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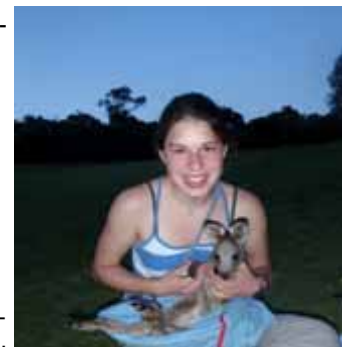
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recent controversially discussed

trials to relocate bat colonies were a big

How this article came into being: I graduated from vet school in Berlin, Germany, in spring 2011. Highly interested in and ready to conquer the competitive challenge of wildlife medicine and research I decided to gain some wildlife research experience at Melbourne Uni. A dream of mine to visit the Australian continent and learn about native wildlife came true. In a four months lasting externship about gastrointestinal parasites of kangaroos I realized how much I enjoyed doing research and I am now looking forward to find a PhD position in a wildlife related field. Accidentally I was just in time to attend the Australasian WDA conference. And I didn't want to miss this great opportunity.

issue. An Australian wildlife conference wasn't complete without talking about most people's favorite native animal: The koalas' struggle for survival in some parts of Australia has varied reasons: Many koalas are infected by a koala specific retrovirus causing "koala-AIDS" and by Chlamydia causing mainly conjunctivitis and fertility related problems. Not even talking

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about human threats like car accidents, dog attacks and animals being illegally shot by farmers.

But even on such a foreign continent some similar issues to Europe can be found: A couple of years ago fluorosis in macropodidae was detected for the first time. Several cases of bone and tooth fluorosis occurred close to an aluminium smelter in Victoria. The collaboration with a research institution in Hildesheim, Germany, working on fluorosis in red deer

was established. Cervidae and macropodidae seem to be highly sensitive to fluorosis intake, even more than cattle being often used to monitor the effects of such industrial emissions.

The whole conference was embedded and accompanied by the local Aboriginal tribe running the camp. During bush walks, stories being told and ritual dancing the attendants became slowly familiar to the way Aboriginal people have used to practice wildlife conservation as an essential part of their culture for thousands of years.

Update from the EWDA Student Chapter

**Adam MICHEL¹ and Steven VAN
BEURDEN²**

It's been an exciting year, and your board has worked to bring you an even better and wilder experience! Let me share with you the past developments of the student chapter.

1. The workshop

The workshop successfully took place once again in France this year (see next story by S. van Beurden). It was a competitive workshop, since 80 student applied for only 35 positions! Funding and organization of such a workshop is a challenge and, therefore, the organizing committee would like to express their highest appreciation to Dr. Leslie Reperant and Prof. Ab Osterhaus for their

support to the organizing committee. Attendance fees to the workshop are kept to a minimal 50 Euros! This would be impossible without the financial support of our sponsors. Please visit www.ewdastudent.org to find out who they are! The EWDA Student Workshop aims at giving veterinary and non-veterinary students, undertaking or willing to undertake graduate studies on wildlife diseases, the opportunity to meet and share the experience of the best scientists involved in wildlife disease research worldwide, early in their career. For this fourth edition forty highly motivated graduate students from nearly 20 different countries were selected. Fifteen internationally renowned scientists affiliated with top universities, wildlife research institutes and international organizations were invited as speakers. We are currently searching for long-term funding, in the form of a European grant, an alliance with industry or an NGO, to



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assure that the workshop can keep on breathing knowledge into wildlife minded students! If you have any wild ideas, please get into contact with the student chapter!

- Website

We are improving our information network. We have a new website that is online. It is slowly taking shape and gathering content. We plan to keep it updated with all the recent information on wildlife research, including recent job offerings, conferences, and an informative list of all major wildlife research institutions in Europe. For more information go to www.ewdastudent.org.

- WDA Student Workshop

The student chapter is actively taking part in the creation of a WDA student workshop! This summer during the WDA conference in Quebec, we gathered for a

round table discussion with members of other chapters from North America. There was a clear wish on behalf of all North and South American students to have a workshop on their side of the Atlantic. Of course, this is of benefit for European student as well, since applications will be accepted from around the world. There has been no fixed date yet, but the first bricks have been erected, and it's now up to the American students to get it under way!

- Board Elections

Finally, it's the time of year where the EWDA Student Chapter Board will be preparing for its succession! We will be accepting new candidatures as of the 1st of November, 2011. **If you have an interest in wildlife, team work and have new ideas to contribute to the chapter**, visit www.ewdastudent.org to learn about how you can apply to one of the Board positions.

4th EWDA Student Workshop 2011: a diary

Steven VAN BEURDEN¹ and Adam MICHEL

Infectious Disease Management was the theme of this year's student workshop of the European Wildlife Disease Association (EWDA). For the fourth time the 4-day workshop successfully took place on the shores of Lake Annecy in France.

Day 1

Situated on the beautiful shores of Lake Annecy, established by Doctor Charles Mérieux on the land of his family property in Veyrier-du-Lac, the conference centre 'Les Pensières' is an incredibly inspiring location to talk about science. Following an afternoon walk in the

mountains to get acquainted with one another, the workshop was officially opened Thursday evening by lectures from

Prof. Derek Smith and Prof. Andy Dobson.

Day 2

Prof. Thijs Kuiken opened the day with an overview of the developments in the field of wildlife health research. Subsequent lectures by Prof. Andy Dobson, Prof. Marc Artois and Dr. Leslie Reperant focused on infectious



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diseases and the epidemiology of disease outbreaks. Prof. Christian Gortazar continued with a lecture on infectious disease control in wildlife and Dr. Sonja Hartnack provided insights on ethical perspectives of disease control. An overview of the pathobiology of diseases in wild animals was given by Prof. Andrea Gröne. For the first time seven students were also given the opportunity to present their research at the workshop through short oral presentations and before dinner, 2 minutes were given to each student to present their poster.

In the evening, global health was discussed in a broader perspective by lectures from representatives of the WHO (Dr. Danilo Lo-Fo-Wong) and the IUCN (Susanna Söderström).

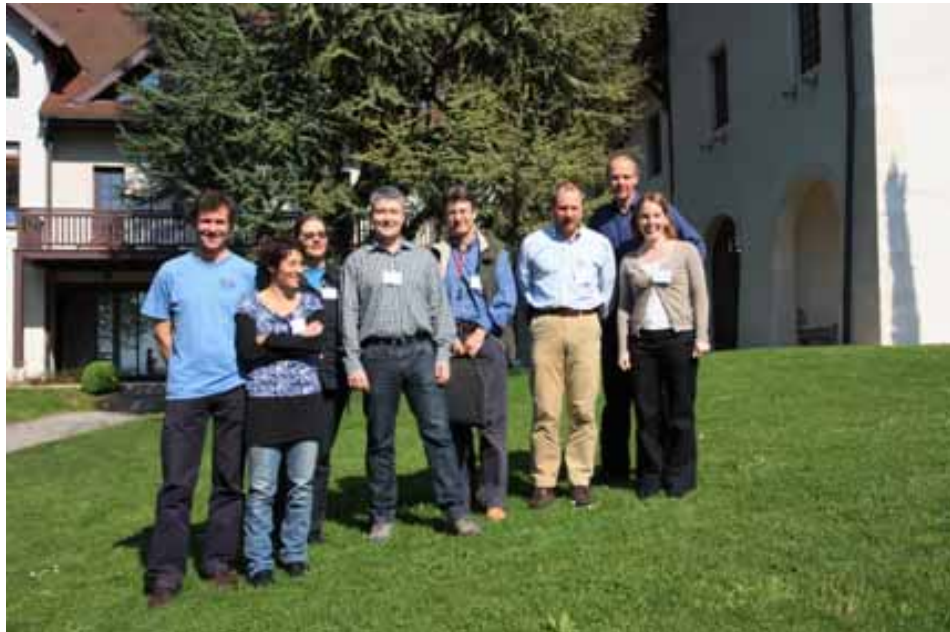
Day 3

We started the day with a lecture by Prof. Thijs Kuiken on emerging zoonotic diseases and pandemics. The rest of the morning and early afternoon were scheduled for small group working sessions consisting of 5-6 students and one invited speaker. Together, a wildlife health related research topic was explored using specific tools and methods introduced by the experts. Participants were also given advice on oral and poster communication. Late in the afternoon Prof. Richard Kock – with 25 years of fieldwork experience in Kenya – lectured on biodiversity conservation in Africa. The famous "Grill the Experts" was scheduled for the early evening to discuss science in general and more particular the life as a scientist; various interesting questions from the students resulted in a relaxed atmosphere. Saturday

ended with a beautiful sunset viewed from the Col de la Forclaz, and a traditional evening at Chalet la Pricaz. Atmospheric music and plenty of wine proved, once again, to be a highly successful combination.

Day 4

The last day of the workshop started early in the morning with a presentation by Thijs Kuiken on the activities and importance of the WDA: an encouragement to becoming a member! This was followed by the "Student Act-out": student presentations of the small group



working sessions of the day before, which resulted in a nice and concise overview of the different aspects of infectious disease management. Another series of lectures followed, the first focusing on wildlife health surveillance in Switzerland by Dr. Marie-Pierre Ryser-Degiorgis, the second on the wildlife-livestock interface, and ending the morning was a very dynamic presentation by Prof. Ezio Ferroglio on wildlife parasites and their threat to public health. Early in the afternoon Prof. Chris Dye from the WHO gave the last keynote lecture of the workshop, focusing on global health policy with regard to infectious disease management. Finally, Thijs Kuiken closed the workshop with a panel discussion involving all speakers. After the official closure, about half

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of the participants and speakers joined and enjoyed the newly organized "Workshop Shaker", consisting of a real Swiss cheese fondue in Geneva and everlasting drinks downtown.

Links

In summary, the 4th EWDA Student Workshop was all about links. First of all, the links between pathogens and their host species in different ecosystems in intricate webs. Second, diseases of humans, domestic animals and wildlife linked in a One Health triangle. Third,

the link between the different disciplines of health research, emphasizing the necessity for multi-disciplinarity in wildlife disease research. Fourth, the effects of different strategies of infectious disease management – the central theme of the workshop – on all previously described links. Fifth, the link of research with society as expressed in (global) health policy. Sixth, the link between students and professors in the education of wildlife diseases, with the workshop itself being a good example. And seventh – and perhaps most important – the fantastic links between all people involved in wildlife health research!



Joint WDA EWDA CONFERENCE, Lyon, 22 /27 July 2012

The 61st International Conference of the Wildlife Disease Association (www.wildlifedisease.org) and the 10th Biennial Conference of the European chapter of the WDA (www.ewda.org) will be jointly organized in Lyon (France) from Sunday, July 22nd through Friday, July 27th 2012.

Information is available at the conference Web site:
<http://wda2012.vetagro-sup.fr>

WDA conference: student activities.

Welcome to WDA 2012 students website !

A very exciting upcoming WDA/ EWDA joint conference will take place next July in Lyon. A devoted French vet students' team has been working to set up various scientific and cultural activities especially dedicated to international students attending the conference.

Several activities are scheduled such as local wildlife discovering in the gorgeous Bauges mountains as we are surrounded by breathtaking landscapes. In addition we are planning a chamois and mouflons capture event using a falling net. Be ready to wake up early!

On Monday there are workshop sessions: what about a four-hour red-eared slider turtle and domestic pigeon necropsy? It will provide participants with a comprehensive overview of basic necropsy protocols and sampling procedures. As well as hands-on experience in dissection, gross pathology and proper tissue sampling. The other workshop will aim at improving writing and oral presentation skills.

Interested in meeting scientists from various backgrounds and knowing more about their jobs, having plenty of questions, here is your opportunity to answer them with good beers in a local venue!

Finally, we are looking forward to seeing you soon for these activities organized for and by students to promote the scientific education of veteri-



From left to right: Maureen Dumoulin, Laureline Chaise, Elodie Jacques, Estelle Rousselet, Emilie Ribault and Mathilde Bachelet

nary and non veterinary students for and by research.

Please do not forget about our website to keep in touch!

<https://sites.google.com/site/wdajr2012vetagrosup/english>

«Convergence in wildlife health».

Conference site: "Ecole Normale Supérieure", Lyon, from Tuesday 24 July up to /Friday 27 July

FEATURED TOPICS and KEYNOTE SPEAKERS

ONE HEALTH, **Dr Aaron BERNSTEIN**, Harvard University, U.S.A.

MIGRATION AND INFECTIOUS DISEASE RISK, **Dr Sonia ALTIZER**, University of Georgia, U.S.A.

MEASURING THE HEALTH STATUS OF A WILD ANIMAL POPULATION, **Dr Marc CATTET**, University of Saskatchewan, Canada.

WEIGHING COSTS AND BENEFITS OF WILDLIFE DISEASE CONTROL, **Dr Richard DELAHAY**, Food and Environment Agency, U.K.

EFFECT OF MULTIPLE POLLUTANTS ON A SINGLE HOST, **Dr Philippe BERNY**, VetAgro Sup, France

List of topics for workshops

(This list is still tentative and subject to changes, please check on the Web site): Monday 23 July , at Vet-Agro Sup, Veterinary Campus of Lyon

- American College of Zoological Medicine Ultrashort course
- Amphibian chytridiomycosis
- Biodiversity and animal health (Workshop to be held in French)

- Capacity development of Veterinary services on Wildlife health
- Infectious keratoconjunctivitis in wildlife: a comparative approach
- Red-eared slider turtle and domestic pigeon necropsy: "they didn't teach that in veterinary schools!"
- White Nose Syndrom in cave hibernating bats
- WildTech technology transfer workshop (NA micro-arrays for diagnostic of emerging pathogens)

Please check the actual topics and organization details on the Conference Website.

To keep in touch, register for the conference newsletter (two issues yet available, a new one coming soon).

Call for papers is on line, submissions will be soon accepted. Full registration will start early in January.

Registration fees for early bird WDA members will be 300€, and only 100€ for WDA students.

EWDA bulletin www.ewda.org

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