



NEWSLETTER // WINTER 2023



CONTENT

- 03 President's Corner
- 04 Notes from the Board
- 05 Transformative Research on Wildlife Health Fund
- 06 Network Committee update
- 07 Vic Simpson Travel Grant
- 08 Marie-Pierre Ryser-Degiorgis Award
- 09 Code of Conduct
- 10 2023 ASF outbreak in Swedish wild boar
- 12 EHD in European wild ruminants
- 14 Of mice and men who catch them
- 16 *E. canadensis* G10 in Norwegian moose
- 17 TBEV infection in alpine chamois
- 18 Wildlife forensics
- 20 Evaluating PIT tags for marking urodeles
- 21 EWDA Conference 2024
- 23 WDA Conference 2024
- 24 Free publishing JWD



ON THE COVER

Wild boar (*Sus scrofa*) by **Erik Ågren**

Finding and testing any dead wild boar was instrumental in detecting the first introduction of African Swine Fever in Sweden in September 2023.

Disclaimer

The editors have put this non-citable bulletin together as carefully as possible and apologise for any errors or omissions may have been committed. The content of this newsletter has not been peer-reviewed and does not necessarily reflect the views of the European Wildlife Disease Association.

Editors: [Erik Ågren](#) & [Anne-Fleur Brand](#)

Published 20 December 2023.

Previous editions of the EWDA Newsletter can be found in the [Newsletter archive](#).

President's corner



"Protecting the global environment is directly related to securing peace... those of us who understand the complex concept of the environment have the burden to act." Wangari Maathai

Life has returned to its old, pre-pandemic ways and most of us have been busy in recent months, whether due to projects in the field or in the lab or because the number of meetings is steadily increasing again. But there will be THE one meeting opportunity we all are impatiently waiting for: next year there will finally be a possibility to meet again as EWDA members at the [EWDA Conference](#) in Northern Germany in September. The anticipation is being involuntarily prolonged a little longer, as unfortunately there has been a slight problem with the online registration tool. This has unexpectedly delayed registration, but as I write this, the local organisers found a solution and as the problem was solved by the time you read this reach for your preferred writing tool and draft your abstract... 😊



Another conference milestone will take place a few months later in Australia in the form of the [Joint WDA/Australasia Conference](#) early December. Andrew Peters and his colleagues have found new creative ways to allow all members of the WDA sections to participate despite the great distance and to experience insights into the three pillars of the Wiradjuri ways of indyamarra (respect) and gulbali ngurambang (understanding Country). Further details can be found in the WDA newsletter "The Transmission".

I am particularly grateful for the honour of announcing the first award presented by the EWDA - in memory of Marie-Pierre Ryser-Degiorgis, who passed away far too soon last spring and whose enthusiasm for both the EWDA as well as wildlife research and conservation should resonate in this award: the [EWDA Marie-Pierre Ryser-Degiorgis Excellence in Wildlife Health Award](#). Please find further details on page 8, but I would like to personally invite all EWDA members to reflect on possible nominations for this special award.

The WDA's "The Transmission" of October 5th, 2023, already reported it, but I would like to also draw your attention to the newly published [Code of Conduct](#). Even if the content is taken for granted in our association, it is still valuable for every community to have this in writing to reaffirm each other that we are serious about treating each other with friendly respect. For more see page 9.

Some time ago, all WDA members were asked to partake in a survey concerning the name of the association and the question of whether it is still suitable for present times. In the new year, everyone will be invited to take part in "townhall meetings" - an informal discussion group to consider as many perspectives on the topic as possible. Please take advantage of this opportunity for personal participation - more details will be announced in future WDA newsletters.

Gudrun Wibbelt

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Notes from the Board

"It's the most wonderful time of the year"

"It's the most wonderful time of the year": the DJ's play this song all day long on the radio these days. However, it is also the busiest time of the year. There are yearly reports that need to be finished, financial overviews that need to be submitted, and all preferably before the Christmas holiday. On the other hand, multi-year projects that have started after the summer holiday are now getting up to speed. Our work on zoonoses in the national Public Health Institute has gained a lot more interest due to the COVID-19 pandemic, resulting in additional investments the last 3 years that provided the opportunities to start studies that we long had wanted to start. All good news it appears!



However, recent developments in the Dutch national politics have made it questionable how much longer research on zoonotic diseases, or on nature in general will be prioritized. The recent elections resulted in a largest party denying climate change and another winner in the elections avoiding necessary decision-making regarding nitrogen emissions. The importance of protecting our environment and the animals in are ignored. Biodiversity is moved to the background. Let's hope our international scientific society is strong enough to handle these national developments.

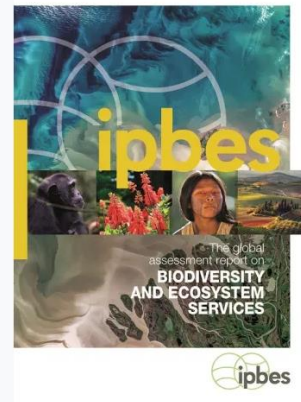
Meanwhile, we have had only two days of frost thus far. "When I was young" we would have had several by now. Seeing nature with a thin layer of frost is wonderful indeed - let's hope these will not become memories of a time gone by, only brought back to life by an old song on the radio.

On a more practical, secretary note: please [renew your \(E\)WDA membership](#) in case you haven't done so already. I wish you all a very festive season and I hope 2024 will be an inspirational and successful year with a wonderful [conference in Stralsund!](#)

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First Transformative Research on Wildlife Health Grant Awarded

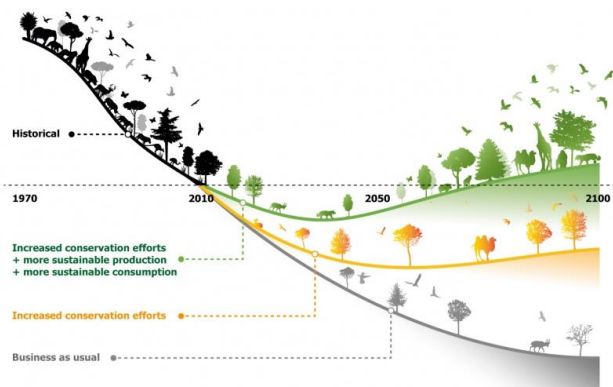


The EWDA has set up a fund to encourage EWDA members to set up research projects on wildlife health that support or implement transformative changes of human society.

This year the EWDA set up the “Transformative Research on Wildlife Health Fund” with two grants up to a maximum of 3000 Euros each. The first grant, about the ecological and socio-economical effects of biosecurity measures for African Swine Fever, was recently awarded. EWDA members are encouraged to apply for this grant in the next round.

In the summary of their 2019 global assessment report on biodiversity and ecosystem services, which was approved by 132 member governments, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) concluded that “goals for conserving and sustainably using nature and achieving sustainability cannot be met by current trajectories, and goals for 2030 and beyond may only be achieved through transformative changes.”

I guess that most members of the EWDA also endorse this conclusion. It follows that these same transformative changes are needed to reduce the risk for the emergence of infectious diseases in humans, wildlife and domestic animals, given that the underlying causes for biodiversity loss and for infectious disease emergence are largely the same.



This artwork illustrates the main findings of the article, but does not intend to accurately represent its results (<https://doi.org/10.1038/s41586-020-2705-y>)

*Transformative change is needed to reverse global biodiversity trends by 2050.
Image: <https://www.pbl.nl/en/publications/bending-the-curve-of-terrestrial-biodiversity-0>.*

To start putting this conclusion into practice, the EWDA has set up a fund called the “Transformative Research on Wildlife Health Fund”, to encourage EWDA members to set up research projects on wildlife health that support or implement transformative changes of human society. Currently this fund holds 20,000 Euros. Any members who wish to contribute to this fund may [contact the treasurer of the EWDA](#).

This year, one grant was funded. It is entitled “[Overlapping hotspots: An atlas of the effects of biosecurity against African swine fever \(ASF\) on bio- and agro-diversity in Lusatia](#)” submitted by Jordan Oelke, a doctoral researcher at the Human Geography Department of the Technical University Dresden. The main aim of this study is to investigate the ecological, sociological, and economic consequences of African Swine Fever control measures at the border between Germany and Poland. By use of field trips and interviews, students will collect data for a series of maps, both on the correlation between ASF and biodiversity that may be at risk due to ASF control measures, and on the potential influence of ASF fences on the risk of wolf attacks on livestock protected by similar fences in small-scale farms. For further details on the requirements for the Transformative Research on Wildlife Health Grant, click [here](#).

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On behalf of the [EWDA](#)
5 [Sustainability Committee](#)

Network Committee update



Our EWDA Network Committee welcomes new members and invites membership to attend our 2024 meeting.

A key goal of the EWDA Network is to improve information exchange among wildlife health professionals involved in surveillance in Europe, which we deliver through hosting meetings and convening networks

EWDA Network meetings

Since 2009, the EWDA Network has organised a series of meetings on different subjects related to wildlife health surveillance in Europe. Our 2018 meeting in Larissa focused on “[How to start up a national wildlife health surveillance programme](#)”: both a report and peer-reviewed publication were produced as outputs. Most recently at our Cuenca meeting in 2021, the topic was “[Expanding the field network of wildlife health surveillance](#)” - an abstract booklet is available on [our webpage](#) and a related paper is in progress.

Our goal is to identify successful examples where surveillance has informed conservation action and make recommendations for the future.

To register and for more information, check the [EWDA conference website](#).

Welcome to new Committee Members!

Sara Savić

[Member at Large](#)

Sara is based at the Scientific Veterinary Institute “Novi Sad”, in Serbia and has an interest in zoonotic diseases from a One Health approach.. Her role involves meeting organisation and production of other information resources.



Pikka Jokelainen

[Google Group Coordinator](#)

Pikka is based at Statens Serum Institut, Denmark, and has an interest in infectious disease preparedness and One Health. Pikka will lead on coordinating our EWDA Google Group to support rapid sharing of information on wildlife health surveillance amongst members.



Becki Lawson

On behalf of the [EWDA Network Committee](#)

2024 Meeting

We are excited to announce our 2024 meeting entitled

How do we translate wildlife health surveillance into conservation action?

which will be held on [Monday 9th September 2024](#) at the Friedrich-Loeffler-Institute in Germany.

Speakers comprise

• Chris Walzer, Wildlife Conservation Society

From Surveillance to Action: Unleashing the Power of Wildlife Health for Conservation

• Ruth Cromie, CMS Councillor for Wildlife Health

Avian influenza: From surveillance to risk mitigation and conservation action

• An Martel, University of Ghent

What did 10 years of *Batrachochytrium salamandrivorans* teach us about early detection of infectious wildlife diseases?

• Tony Sainsbury, Zoological Society of London

Monitoring the health of species in conservation translocations: The Disease Risk Analysis & Health Surveillance Project

Vic Simpson Travel Grant



Applications are now open for the Vic Simpson Travel Grant 2024

Please consider applying for a travel grant to the 2024 EWDA Conference

The [Vic Simpson EWDA Conference Attendance Fund](#) was initiated and made possible thanks to a generous donation by [Dr. Vic Simpson](#) in 2017, who also defined the grant purpose and guidelines. To learn more about Dr. Vic Simpson, click [here](#).

The [purpose](#) of this fund is to encourage people of limited financial means to attend EWDA conferences. The fund is not intended for students (neither undergraduate nor postgraduate) as separate funding schemes are available for them.

Guidelines

1. Eligibility: priority will be given to people who:
 - are largely, or solely, [self-financed](#).
 - wish to give a [presentation](#), oral or poster.
 - have been an EWDA member for a [minimum of 12 months](#) prior to submitting their application
2. An attendance grant is intended to [cover the conference registration fee](#) and [reasonable travel expenses](#). It is not intended to cover all the applicant's conference expenses, such as accommodation or meals.
3. Applications for attendance grants by wildlife ecologists or [researchers in other allied natural sciences](#) is encouraged, provided their work has clear veterinary relevance.

More information on the guidelines for the fund and grant can be found [here](#).

Application instructions

Applicants should submit a:

1. [CV](#) and a
2. [letter of intent](#) that includes:
 - who you are,
 - where you work,
 - why you wish to receive financial support,
 - how long you have been an EWDA Member,
 - a brief budget for the trip,
 - what contribution is requested,
 - the planned type of transport,
 - the title of the submitted abstract, if applicable.

Please send applications to the [EWDA secretary](#).

Deadline for application is February 15th, 2024

Paul Holmes

Animal and Plant Health Agency, England

On behalf of the [EWDA Small Grants Committee](#).

The Marie-Pierre Ryser-Degiorgis Award



The Marie-Pierre Ryser-Degiorgis Excellence in Wildlife Health Award

honours an EWDA member who has made an outstanding contribution to the field of wildlife health through inspirational, innovative and/or impactful practice.

The EWDA Board is pleased to introduce a new Award implemented in memory of [Marie-Pierre Ryser-Degiorgis](#). Marie-Pierre was a devoted member of the Association, which she considered as her extended family. Her sharp mind and rare talent for [understanding the necessary interdisciplinary approach to wildlife disease investigation](#) made her one of the experts in the field, as evidenced by the vast number of appointments she held and contributions she made at the national and international level. This was only paralleled by her commitment to [sharing knowledge](#) and training professionals in the wildlife health field.



Award criteria

- Any EWDA member, or group of EWDA members, may nominate an EWDA member for this Award.
- The Award is open to EWDA members across career stages.

Nomination instructions

Please send nominations to the [EWDA secretary](#) and include:

- Candidate's **CV** or equivalent.
- **Letter of nomination** (~1-2 pages) specifically addressing how the candidate meets the selection **criteria** for the Award:
 - is a member of the EWDA.
 - has made an outstanding contribution to the field of wildlife health through one or more of the following:
 - 1. inspiration:** e.g. mentorship, leadership, collaboration
 - 2. innovation:** e.g. methods development, training, pioneering approach
 - 3. impact:** e.g. conservation, animal welfare, community support.

Deadline for nomination is April 15th, 2024

Code of Conduct



"Diversity is about all of us, and about us having to figure out how to walk through this world together." – Jacqueline Woodson

In July 2023, the WDA Council confirmed the [WDA Code of Conduct](#), which had been drawn up by the WDA Membership Committee. To give this document sufficient weight, a WDA Ethics Committee is to be set up, which will be made up of members from each section - interested persons are now being sought!

The WDA Membership Committee is focused on [identifying the needs](#) of all WDA members and [improving the value offered](#) to them. The committee works to increase the diversity of membership and to ensure that WDA is an inclusive association.



The committee is divided in two subcommittees: one member committee and one diversity committee. The latter developed and drafted the Code of Conduct as it was felt that, despite the family atmosphere within the WDA, it would be appropriate to create a statement that considers the fact that the WDA membership is made up of different people and that provides for open, equal and respectful interaction.

Any member who should experience any kind of harassment or discomfort in the context of WDA associated activities is invited to [confidentially approach](#) the [chair of the Ethics Committee](#) or a designated [ombudsperson](#) for an event (e.g. conference) to help prevent further such incidents.

To set up such an ethics committee, [volunteers are needed](#) from each WDA section, including the EWDA. Please feel encouraged to volunteer - either directly to the Chair of the Members Committee ([Jasmin Hufschmid](#)), or to the Chair of the EWDA ([Gudrun Wibbelt](#)).

An excerpt from the WDA Code of Conduct: "... Our Association is committed to providing a [safe, positive, and professional environment](#) that is [free of prejudice](#) in our meetings, functions, and online forums, and that is free of harassment and [fosters active, equal participation](#). Harassment is defined as speech or behavior that is not welcome, is personally offensive, or causes distress, whether it is based on national origin, ethnicity, race, geographic, socioeconomic, and educational backgrounds, gender identity and expression, intersex status, sexual orientation, religion, age, physical appearance, disability, military or veteran status, political beliefs or affiliation, career stage, marital status, career responsibilities or pregnancy status. Harassment expressed in a joking manner still constitutes harassment and is unacceptable. Behavior that is acceptable to one person may not be acceptable to others. As such, one must use words and actions that clearly communicate respect for others..."

Please view the full Code of Conduct [here](#).

Gudrun Wibbelt

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2023 ASF outbreak in Swedish wild boar



September 6, 2023, the day Sweden became the 24th European country to diagnose ASF in wild boar.

Six dead wild boar found within a 3 km area were reported to the Swedish Veterinary Agency (SVA) within one week, a very unusual event. The first available sampled wild boar carcass tested positive for African Swine Fever (ASF)-virus. Here we briefly describe the initial phase of the first finding of ASF in Sweden and actions taken to eradicate this point introduction.

The first case of ASF in wild boar was confirmed on 6 September 2023 in a found dead boar from the northernmost edge of the Swedish wild boar population, in central Sweden, in the municipality of Fagersta in Västmanland county. Of the six reported dead wild boar in the vicinity, initially only one was located for sampling by local hunters.

Most carcasses were found dead in or close to water or water-filled ditches. This indicated that the animals were sick and probably feverish before they died. The weather had been warm, and carcasses were bloated and usually severely infested by maggots, typically massively both in the head and anal region.

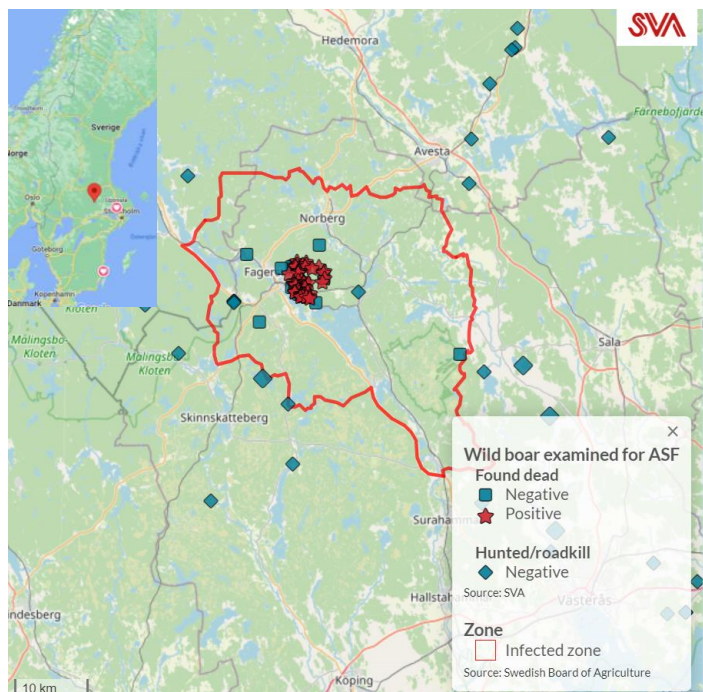
After reporting to the relevant national and international authorities, the Swedish Board of Agriculture (SBA) declared an infected zone in accordance with EU regulations, after input from the SVA expert ASF group. Restrictions in this area of about 1 000 km² included a ban of all human activities in nature except for established roads, to avoid disturbing the wild boar and avoid spread of virus out of the zone.

SVA staff visited the site on 8 September to meet the local authorities and local hunters. Together with staff from the local office of the Swedish Association for Hunting and Wildlife Management (SAHWM) the local hunting teams were contacted and organized to start a systematic search for carcasses within the closest few km from the first findings. All volunteering hunters were registered and given instructions on how to ensure biosecurity during the search and when leaving the area.

A large recycling plant and the local city waste deposit is located in a densely forested area just over 1 km from the community. This plant is considered as the possible site for the introduction and infection of the local wild boar population as all ASF-positive wild boar so far have been found dead within about 3 km from the site.

The SBA had a fully operational local disease control centre and a temporary sampling site within a week. Hunters used their ordinary mobile hunters' app WeHunt® to track where they had searched and to geomap findings of carcasses. A big effort was put into creating a mapping system of searched areas, to make the search effective, as the core area is to be searched multiple times the coming months.

Collecting teams brought carcasses to the sampling site, samples were taken and couriered to SVA for PCR-analysis, and carcasses were incinerated in a mobile incinerator. Mapping of the outbreak is published and updated regularly on the [SVA website](#).



Map of the 1000 km² infected zone around Fagersta in central Sweden. A fenced-in core area surrounds the cluster of positive cases. Inset: Sweden, with Fagersta at red pointer. Source: sva.se/en/

A team of EU ASF-experts did a two-day visit to the site and wrote a brief report with their assessments and recommendations for the Swedish competent authorities. The conclusions were carefully positive to the taken actions, and good luck!

By late November, around 60 positive carcasses had been found, all in a core area, with a maximum distance of about 5 km of each other. Fencing off this about 12x13 km in size core area started in mid-October, taking advantage of existing game fences along major roads, which already covered over half of the needed fencing.

Once the fence was in place, culling of wild boar within the core area started, using trapping and sharp-shooting at baiting stations. Based on hunting bags, the number of wild boar within the infected zone was estimated to have been between 500 and 1000 before the outbreak.

The SVA has had an expert ASF expert group for several years, with representation of wild boar biologists and SAHWM, planning and working with the SBA to create contingency plans. Regular multi-agency communication and cooperation to prevent introduction, and training with relevant stakeholders to handle an introduction of ASF, has been ongoing since the introduction of the disease into Europe.

Based on the present results, we assess that the outbreak was detected early enough, and this thanks to the SVA general wildlife disease surveillance. A lot of communication to hunters, the general public and to relevant professionals to report any found dead wild boar, has been done the past years. The normal number of reported dead wild boar per year has been low, and most reports were single dead boar. Six dead boar at once, as in Fagersta, was different!



Images of ASF-positive dead wild boar were used to assess approximate dates of death, to establish a time-line for the introduction of ASF in Sweden. Photo: Erik Ågren

To estimate the time of introduction of ASF in Fagersta, and the start of the outbreak, photos of all found carcasses were evaluated with various taphonomic methods. A preliminary estimate so far is that the oldest positive carcasses could be from May - July 2023. No further newly dead positive wild boar have been found since late September, so with some luck, the outbreak is contained, fenced in, and hopefully under control!

Reactions to the outbreak have been varying. Politicians want to decimate the wild boar population in general, some agricultural organizations want to exterminate all wild boar. The local people in Fagersta are generally accepting the restrictions to access nature in the infected zone. A lot of information efforts directed at the local inhabitants have been done by the authorities to explain how and why restrictions are necessary and how the outbreak eradication is planned, and how the work is proceeding. Local enterprises can apply for compensation for lost income due to the restrictions, and dispensations are given the SBA for certain activities in the infected zone such as urgently needed forestry work, after applications from landowners or businesses.

Special attention and thanks is due to the massive efforts of the volunteering local hunters, who have been instrumental in searching the forested area for carcasses!

With some luck, by the next EWDA newsletter, Sweden can report a successful eradication of the ASF outbreak, until then, fingers crossed!



Info to hunters to help stop ASF with good biosecurity. After finding ASF in Sweden, it is the local hunters who have made the eradication work possible, by searching for carcasses in the area.

Erik Ågren, DVM, Dipl. ECVP,
DipECZM (WPH)

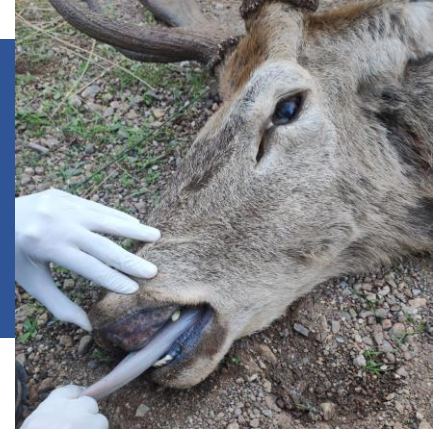
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EHD in European wild ruminants



Severe epizootic haemorrhagic disease in red deer

In 2022, we confirmed two cases of epizootic haemorrhagic disease (EHD) in red deer in southern Spain. Many questions arose about the impact of EHD in European wild ruminants, so herein we present the two cases and the results of a serological study to estimate EHD virus spread in 2022 and describe the evolution of EHD in 2023.

Pathogens are always knocking on the door to spread and colonise new territories, and we are facilitating their spread. For vector-borne pathogens, the pathways for jumping from enzootic to new lands are greatly facilitated by climate change and globalisation. We probably facilitated the emergence of a new threat to wildlife health in Europe, the epizootic haemorrhagic disease virus (EHDV). The arrival of [EHDV serotype 8 in North Africa](#)

in recent times became the [pathway for EHDV to enter Spain](#), and subsequently allowed its spread to other EU MS.

In mid-November 2022, several red deer observed with depression, anorexia, weakness, ataxia, and severe respiratory distress died in a red deer farm in [southern Spain](#); a 1.5-year-old male was necropsied. A week later, a moribund stag was found 180km North of the farm and it presented with severe dyspnoea and weakness. On external inspection, both animals presented poor body condition, severe congestion and cyanosis of the oral mucosa and tongue (Fig. 1A). Pulmonary congestion and liquid and froth in the trachea and bronchi, compatible with severe alveolar oedema (Fig. 1B), were observed in the two animals. One of them presented a moderate number of petechial and ecchymotic haemorrhages in the parietal pleura. Microscopically, the lungs had severe alveolar and interstitial oedema along with light congestion (Fig. 1C). Lymphoplasmacytic vasculitis on vessels was observed in the lung, heart, and liver (Fig. 1D, E). Glomerular capillaries of the kidneys were congested. Lymphoid follicles of the spleen showed a depletion of lymphocytes (Fig. 1F). Thrombi were not seen.

Samples of spleen and blood taken at necropsy were tested for the presence of EHDV using a real-time RT-PCR duplex pan-EHDV protocol. We detected EHDV in the two deer. The variable segment 2 (VP2) and segment 5 (NS1), were amplified by RT-PCR, sequenced and compared with GenBank published sequences. We [confirmed EHDV-8 infection](#) in both cases.

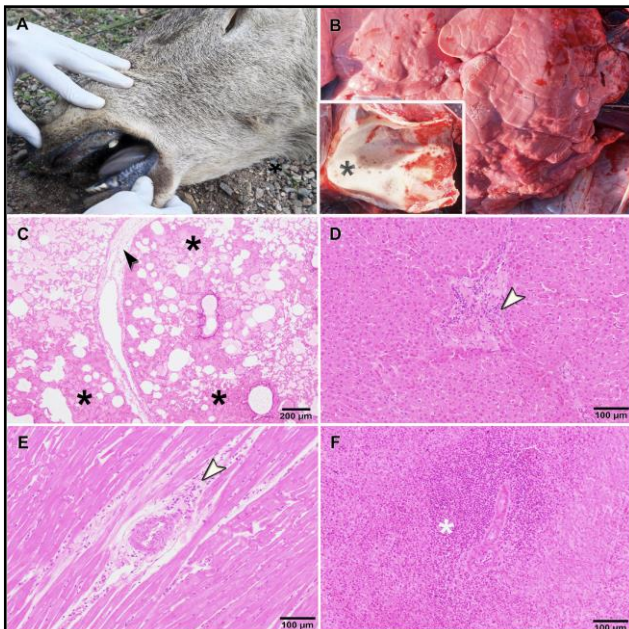


Fig. 1. A) Cyanosis; oral mucosa/tongue. B) Light lung congestion; lobulillar-like pattern and liquid and froth in the trachea/bronchi (grey asterisk, inset). C) Severe acute pulmonary oedema; fluid in alveoli (black asterisks) and interstitium (black arrowhead). D) Portal hepatitis/miocarditis (E) of lymphoplasmacytic perivasculitis (white arrowheads). F) Mild depletion of lymphocytes in spleen lymphoid follicle (white asterisk).

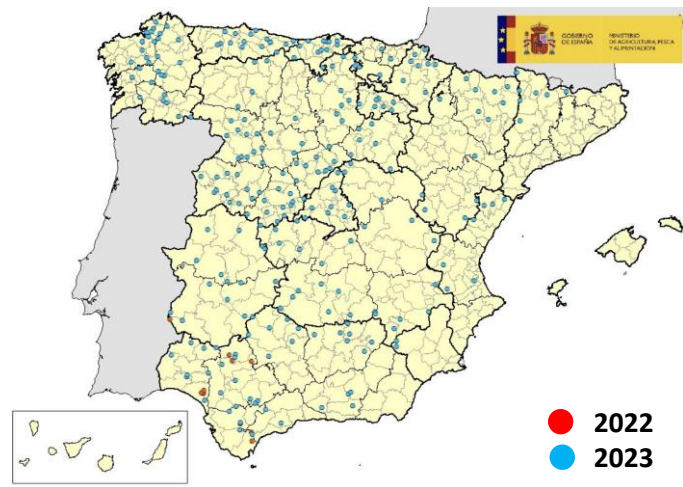
Contained spatial EHDV spread in 2022 and massive expansion in 2023 in Iberia

EHDV in Iberia, 2022

Between Nov 2022 and Feb 2023, we collected sera from red deer (n=578), fallow deer (n=3), and mouflon (n=11) in 14 localities of southwestern Spain (Fig. 2). Specific antibodies against EHDV VP7 were detected with ID Screen® EHDV Competition (ID.Vet, France) in 37 of 592 (6.3%; 95% Confidence Interval: 4.3-8.2) wild ruminants, only in red deer and in the locations where the cases occurred.

EHDV expansion, 2023

Although EHDV-8 spread in a contained manner in southern Spain in 2022, the scenario in 2023 changed completely. From early summer 2023, EHD cases in wild ruminants, mainly red deer, and cattle spread throughout Spain, reaching Portugal and southern France. The diverse pool of competent vectors for EHDV-8 transmission, as well as high temperatures, probably favoured EHDV spread throughout Spain.



Distribution of EHD outbreaks in cattle in Spain in 2022 & 2023. Source: <https://www.mapa.gob.es/es/ganaderia/>.

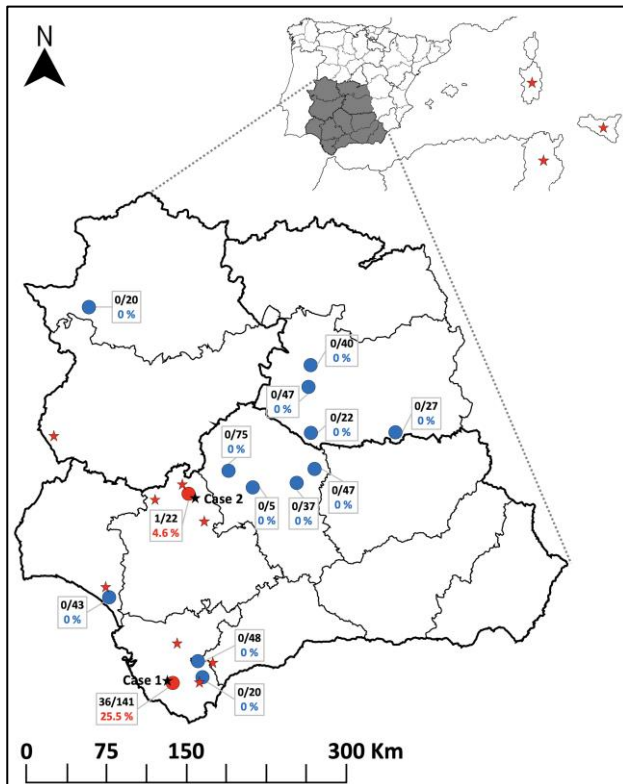


Fig. 2. Serological results for 14 wild ruminant populations (blue: negative; red: positive). Positive to tested samples and seroprevalence (%) per population are shown. ★ Cattle EHD outbreaks in 2022. ★ Clinical red deer cases.

We expect that if the weather remains as warm in 2024 as it has been in 2023, EHDV-8 will spread throughout Europe.

Virtually no cases of EHD were reported in other wild ruminants that were abundant in EHD-affected areas of Spain. Similar signs caused by EHDV infection were confirmed in a fallow deer in southern Spain. Recently, EHDV infection has been confirmed in roe deer in France which showed hardly any clinical signs. Several wild ruminants in zoological collections were affected by EHD in Spain, with severe signs in moose.

The impact of EHD on red deer in Spain appears to be limited, with mortality apparently below 3-5%. However, in individual populations, we observed that EHD killed about 10% of red deer.

Controlling the spread of EHDV in Europe is difficult since competent vectors are widespread and abundant. We need to estimate the impact of EHD on wild ruminants, what role different vector species play in EHDV transmission and identify whether EHDV could undergo enzootic establishment in European wild ruminants.

Dr. Francisco Ruiz-Fons

Spanish Game & Wildlife Research Institute. Spanish Scientific Research Council (CSIC); Ciudad Real, Spain.

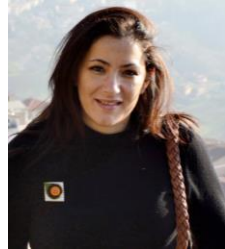
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Dr. María Ángeles Risalde

Animal Health & Zoonoses Research Group. University of Córdoba; Córdoba, Spain.

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Of mice and men who catch them



Trapping is hunting, with welfare risks for wildlife, also applicable when trapping mice...

Trapping mice and voles for pest control or for research is commonly done with classical snap traps. We want to point out that snap traps often lead to unnecessary suffering and thus poor animal welfare. But improvement is possible.

This is a condensed English version of a debate article from the Swedish Veterinary Journal (Svensk veterinärtidning 07/23, pp. 46-47).

Use of the common snap trap for mice often leads to unnecessary suffering, as many of these types of traps sold over the counter cause an inefficient and prolonged death struggle. Even live capture traps for mice can cause unnecessary suffering, as mice risk dying from stress in these traps.

In Sweden, traps to be used for animal trapping have to be approved by the Environmental Protection Agency, according to the regulations on approval of traps (NFS 2013:13). Practical tests as part of the approval process are done to describe how well a trap works, how selectively it catches, and consider aspects of animal welfare and user safety. We (EÅ, PK, UAB) have performed multiple trap tests and our experiences lead us to highlight the need of, and suggestions for, improvements, both regarding trap construction and approval regulations.

The classic open type of snap trap for mice was approved already in 1987. This type is designed for the impact mechanism to hit the neck with the

intent to cause instant death. However, tests show that the mice do not die instantly but stay conscious and slowly suffocate to death.

Radiographs and necropsy verify that the neck vertebrae do not break. Faulty catches, when a mouse is hit over the abdomen or legs, also occurs with snap traps, causing injury but not death. To conclude; snap traps expose many mice to unnecessary suffering.

Trapping is a form of hunting. Hunting must be conducted so that the game is not exposed to unnecessary suffering, according to the Swedish Hunting Act (1987:259), Section 27. Notably, the regulations NFS 2013:13 (partly based on the not implemented ISO 10990-4, and 10990-5 standards) allow up to 45 seconds to pass from the trap closing until the mouse becomes irreversibly unconscious until death. This contrasts to other Swedish regulations on how to slaughter or euthanize domestic animals. Specifically, killing by strangulation or hanging an animal to death is not included as a permitted method in these Swedish regulations.

There are some models of snap traps for rodents that provide instant unconsciousness and death as the strike force hits the skull dome, and not the neck. It is therefore reasonable to require immediate unconsciousness for future trap constructions, as well as part of the approval of killing traps for mice.



An open snap trap for mice may cause unnecessary suffering when a faulty catch result in trapping an animal over the body or leg. Even when the neck is struck, as the trap is intended to do, and constructed for, immediate unconsciousness is not achieved. Death is caused by strangulation as the airways are compressed, not by neck dislocation as many may assume. Many classical snap traps lead to animal welfare issues.

Photo: Erik Ågren



*One of few commercial snap trap models for killing small rodents constructed to always strike the head and not the neck. The head strike leads to immediate unconsciousness followed by death. Improved animal welfare is achieved, compared to many classical snap trap models.
Photo: Erik Ågren*

Furthermore, the regulations currently allow type approval if at least 80% of the test animals die correctly (within 45 seconds). The current regulations thus accept that 1 in 6 catches fail! In conclusion, also type-approved traps can cause unnecessary suffering in many animals. Here we believe that significantly higher demands should be placed on trap design to develop traps with a failproof functionality. And that regulations should require 100% correct test catches, for approval.

It is noteworthy that none of the new open snap traps for mice tested since 2013 when NFS 2013:13 regulations were implemented, have been approved in the practical test. But there are about fifteen killing traps for mice approved before 2013. Most of these would probably not be approved if retested according to current regulations.

Live mouse trapping may be seen as a more acceptable alternative for some, rather than a killing trap, but tests showed that mice were injured, and some died after five hours, of stress, with bleeding stomach mucosa. The time interval for checking on live traps for mice was then shortened from 12 hours to five hours. Questionable, as mice had died already after five hours!

To improve animal welfare, an alarm device activated at capture could be used to shorten the time spent in the trap. Also, possibility for a caught mouse to hide within a live capture trap, as well as having food and water available in the trap could be potential improvements. Animal welfare in tests is presently assessed mainly by pathology and grading physical injuries to the animal. To have a better picture of animal welfare, other criteria should be mandatory, such as assessment of behaviour and measuring physiologic parameters.

It is clear to us that use of classical open snap traps causes unnecessary suffering in mice. In summary, we see a need for measures and efforts to improve animal welfare in connection with trapping mice. We propose the following, asking for action from Swedish authorities, but several of these points could very well be considered in other countries as well:

1. Revise the regulations NFS 2013:13 so that killing traps for mice must cause instant unconsciousness, followed by death.
2. Increase the passing rate requirements for test catches from 80% to 100%
3. Conduct new tests of all mouse traps approved before 2013.
4. If live trapping of mice is to be done, the time from capture to trap inspection must be much shorter than five hours.
5. Evaluate methods to reduce stress for animals in live traps.
6. Tests of live capture traps should, in addition to grading physical damage, also include studies of behaviour and physiological changes.
7. Develop new traps based on the knowledge gained through these practical tests, to obtain the best possible animal welfare.
8. Forbid sale of traps that have not been approved by the competent authority.

Original article available [here](#).

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E. canadensis G10 in Norwegian moose



In January 2023, the Norwegian Veterinary Institute (NVI) confirmed the first case of *Echinococcus canadensis* G10 (ECG10) in a Norwegian moose. The moose was felled in Stor-Elvdal county in the Eastern parts of Norway, close to the Swedish border.

***Echinococcus canadensis* G10** is a species in the *Echinococcus granulosus sensu lato* complex which encompasses 10 different genotypes. The end hosts are wolves and dogs, whereas the intermediate hosts vary and include sheep (G1-G3), horses (G4), cattle (G5), camelides (G6), swine (G7) and cervids (G8 & G10). Of the *Echinococcus granulosus sensu lato* species, only *Echinococcus canadensis* G10 is yet to be diagnosed in Norway.

ECG10 has a circumpolar distribution and is occasionally found in our neighbouring Nordic countries. The carnivore end hosts develop worms in the intestine and shed eggs to the environment. Humans and cervids can, if infected, develop cysts in internal organs, typically lungs and liver. The cysts compress surrounding tissue and can lead to a variety of symptoms in the intermediate host.



Echinococcus cyst in moose lung tissue.
Photo: Norwegian Veterinary Institute

To gain a better understanding of the distribution and prevalence in Norway, NVI together with the Norwegian food safety authorities and Inland Norway University of Applied Sciences started a collaboration to spread information to the hunting community and municipality etc. about the parasite prior to the hunting season 2023. Information included life cycle, the zoonotic potential of the parasite, as well as information on how to recognize cysts in internal organs and how to sample for confirmation of the diagnosis.

ECG10 is a list 2 pathogen and therefore a notifiable disease to the Norwegian food safety authorities.

As a result, three more cases were diagnosed in moose, all in the Eastern parts of Norway (Røros and Åmot municipalities). The cysts were found in lung and liver tissues and PCR was applied to confirm the *Echinococcus* species. Lung cysts typically appeared as raised nodules on the lung surface, while on cut surface an inner white capsule was revealed. The cysts contained a clear, watery fluid with white sediment. Liver cysts were more variable in presentation and more material is needed to pinpoint their exact appearance.

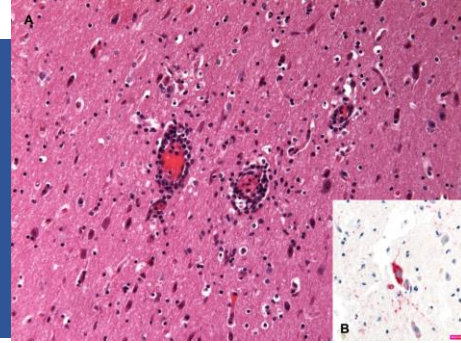
The results are not surprising, considering the previous finding of ECG10 in wolves in both Sweden and Finland. The prevalence of ECG10 in Norwegian wolves is not yet investigated. Further studies are needed to gain an understanding of parasite load and its effect on the wellbeing of moose.

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TBEV infection in alpine chamois



Ticks, with their pathogens and hosts, are always an interesting challenge for researchers

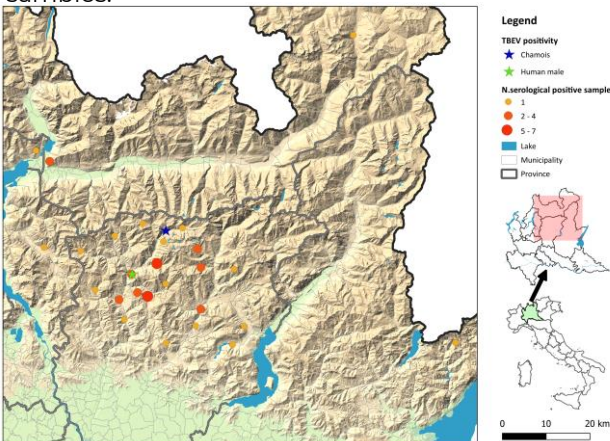
Evidence of TBE virus in a symptomatic chamois and in its ticks in the Italian Central Alps

In May 2023, a moribund chamois (*Rupicapra rupicapra*), about 15 years old, was found in the Orobian Alps in the province of Bergamo, Lombardy Region. It showed muscle tremors, difficulty of movement, hyporeactivity and frequent swallowing. The animal was euthanised and taken to the Bergamo laboratory of the Istituto Zooprofilattico Sperimentale della Lombardia e dell'Emilia Romagna (IZSLER) to undergo necropsy.

The necropsy revealed poor general condition, absence of adipose tissue, incomplete moulting and massive tick infestation. The following lesions were also observed: pleuro-costal adhesions, parasitic nodular lesions, pale-looking myocardium with focal adherence between the two pericardial leaflets; forestomach replete with food, presence of gastro-intestinal nematodes, pallor of the kidney parenchyma and cribrous appearance of the cortical surface, hypertrophy of the adrenals; pallor of the liver with focal irregular whitish lesions on the surface.

In application of the monitoring plan for tick-borne pathogens in place in the Lombardy region, 26 ticks (14 females and 12 males) were collected from the carcass, of which 12 tested positive to PCR for TBEV (8 females and 4 males).

TBEV was also tested from chamois viscera pool, blood and encephalon, and was positive in all samples.



Map of the Lombardy region showing serological positives, the positive chamois as a blue star and the possible location of tick bite causing the human case as a green star.

The sequences obtained from female tick, male tick and the chamois were identical to each other. This sequence falls into a well-supported cluster with other European sequences, classified as a Central-Western European subtype.

The presence of circulating antibodies by ELISA technique was also detected, while the other bacteriological and virological investigations performed were negative.

Histopathological examination revealed severe chronic non-purulent meningoencephalitis, characterised by perivascular lymphohistiocytic cuffs, neuronal necrosis and neuronophagia. Immunohistochemical examination also showed neuronal positivity for TBEV (see photo in title).

The Lombardy region's health monitoring plan provides for serological checks for TBE in hunted wild ruminants from 2020; in this three-year period, 48 positive sera were found, in particular chamois (19/556) deer (24/850) and roe deer (4/493). Of these, 41 samples corresponded to animals shot in the alpine area of origin of the case described.

Furthermore, in October 2022 a hunter from Bergamo who had frequented the areas where animals serologically positive for TBE were found, was admitted to hospital in Bergamo, from where he was discharged with a diagnosis of tick-borne encephalitis.

The serological positivity in wild ruminants, the human case and the evidence of the virus in chamois and its ticks confirm the identification of a new TBE hot spot in the Central Alps.

Gaffuri A., Calzolari M., Karaman I., Prati P., Vicari N., Pigoli C., Gibelli L.R., Cerioli M., Sommariva M.P., Bianchi A., Lelli D., Bertoletti I.

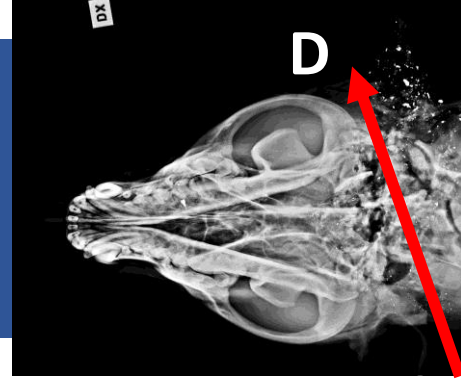
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Wildlife forensics



Wildlife forensic competence is needed to fight wildlife crime and improve welfare for wildlife.

Wildlife crime, valued at tens of billion USD annually, is among the top four criminal sectors together with drugs, weapons, and human trafficking. Wildlife professionals with competence in forensic case investigations are needed to present useful evidence for the court. There is a need to improve continued education in this field.

As a wildlife pathologist at the Swedish Veterinary Agency, I am expected to perform necropsies and investigations on cases that are submitted for a forensic investigation. Domestic animal forensic cases often involve suspected abuse or neglect. Wildlife forensic cases are often related to poaching or hunting but may involve animal welfare issues as well. In many of these cases there are visible obvious or severe lesions that are, or at least appear to be, animal welfare issues, or results of obvious illegal activities. The difficult part of the job may be to make an unbiased examination. Even with an obvious cause of death, you need to document and collect evidence, do an evaluation of the findings and write a report that is understandable and useful for the judicial system, especially in court procedures.

Improving your forensic science skills

How do you [become a better wildlife forensic investigator](#)? Learning by doing and having common sense, and maybe an experienced colleague to give good advice has been the way to learn previously, but both veterinary and wildlife forensic science has been a rapidly developing discipline the past 20 years at least. Any laboratory or institute should have well documented instructions and routines also for forensic cases. If not, maybe you may have to do or improve them!



The logotype for the International Veterinary Forensic Science Association, IVFSA.

To find colleagues with similar interests, there is often an association to join. For this field, there is the [International Veterinary Forensic Science Association](#). After being invited to hold a keynote talk at the IVFSA conference in Phoenix, Arizona in May 2023, it was interesting to note during the meeting that the same questions and difficulties regarding work with veterinary forensic science in Europe is present also in the US. More research in this field is definitely needed! Do consider becoming a member if you are interested!



A brown bear forensic case in Sweden. A younger version of the author documenting angles of bullet wound tracts, with the bear carcass mounted on an in-house constructed "bear-holder" especially designed and built for the purpose. Photo: SVA

CFVP

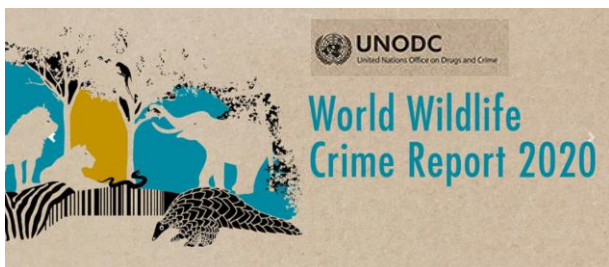
For diplomates of the European College of Veterinary Pathologists, ECVP, there is now a possibility to take a [certificate in forensic veterinary pathology](#), CFVP. The requirements are to submit ten written anonymized actual forensic cases done by the candidate. These are assessed and hopefully approved by a steering group, followed by an oral round table discussion examination. The certificate is to ensure a suitable standard and proof of competence for the court, and that sound investigatory, documentary and reporting procedures are followed. The certificate does acknowledge the diversity of the judicial systems within Europe, this specific knowledge has to be acquired by other means. Re-certification is needed every five years by submitting a further five cases for evaluation. Workshops in forensic veterinary pathology are held at ECVP/ESVP society conferences to discuss and develop the field.



WDA and wildlife forensics?

Interest in learning more about forensic science within the membership has been apparent when workshops on forensics have been offered at EWDA conferences, e.g. the Vlieland 2010 and Berlin 2018 meetings. To go from sporadic events to a continuous effort in developing and spreading knowledge in this specific, but important field, a core group of interested members within the association would be needed to create a network, or a working group. Food for thought... and I am happy to receive suggestions and be part of whatever the next step can be....!

Any one of us working as wildlife professionals can be obliged to participate in wildlife forensic case investigations or be called as an expert witness during court procedures. To feel comfortable in these situations demands training, knowledge and experience, not easy to gain by your lonely self!



UN report on world wildlife crime 2020.

Resources and references

There are now several textbooks on Veterinary forensics, and an increasing number of scientific publications to be found, do your online search!



Online courses are available at the University of Florida, also for Wildlife Forensic Science & Conservation, MSc, Graduate certificate, or non-degree courses.



The US Fish & Wildlife Service have a dedicated Fish and Wildlife Forensics Laboratory in Oregon, they take on volunteers...!



Keep an eye open for suitable courses, recently the Davis-Thompson Foundation held a workshop on Wildlife forensics!



The next IVFSA meeting is on Sardinia, May 14-17, 2024, a hybrid meeting but maybe we will see some EWDA members there?

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Evaluating PIT tags for marking urodeles



PIT tags need species and protocol specific evaluation before field use in urodeles

The existing literature on PIT tag use in urodeles is lacking detailed information on factors that could strongly influence PIT tag rejection and impact individual welfare. Critically analysing PIT tagging methods and testing their use in different species is essential to ensure the validity of future research and conservation of urodeles.

Amphibians are currently **the most threatened vertebrates** on Earth, and among them, urodeles are facing the greatest conservation challenges, reaching 400/701 species under threatened categories. In order to effectively manage and conserve amphibian diversity, our ability to monitor population dynamics and the impact of specific threats is crucial. **Capture-mark-recapture** studies are key tools for population ecology, providing estimates of survival, movement and population trends. Relevant aspects of disease ecology and impacts can also be investigated through such data.

The use of passive integrated transponder (PIT) tags in urodeles has become popular for individual marking. PIT tags are glass-encapsulated microchips that provide a unique alpha-numeric code, offering permanent and unambiguous identification. Tagging can be performed via injection or by surgical implantation either under the skin, into the muscle or the celomic cavity. Despite being a relatively simple procedure, **tagging can affect behaviour and survival** of marked individuals. Mark loss or mark-induced mortality can introduce biases and decrease precision in parameter estimates, leading to ineffective management strategies.

In this study we 1) analysed the existing literature on the use of PIT tags in urodeles, 2) determined if species characteristics and PIT tagging methods influenced PIT tag rejection across studies, and 3) experimentally assessed the adequacy of a subcutaneous PIT tagging method without anaesthesia in three European urodele species.

We systematically and quantitatively reviewed a database of literature, classified and examined study design and outcomes across studies. Among 51 papers that fit our criteria, the most striking finding was the **lack of reporting and standardization** of PIT tagging procedures. Most studies presented incomplete information on factors that could strongly influence the probability of PIT tag rejection and individual welfare (i.e. tag size, anatomical placement, anaesthesia use, sterility, or skin closure). We could not identify significant predictors of PIT tag loss, suggesting that their **effectivity is highly species and method specific**. Our tagging protocol involved the implantation of PIT tags (8 x 1.4mm, Trovan®) subcutaneously in the dorsum, using a pre-loaded sterile needle and closing the skin with Vetbond®. It proved reliable in *Salamandra Salamandra* and *Pleurodeles waltl*, whereas it was not suitable for *Calotriton asper* (67% PIT tag loss).

We emphasize the importance of reporting implantation methods, ensuring **animal welfare** and performing species and protocol specific **laboratory trials** before using PIT tags in the field. Critically analyzing marking methods is essential to ensure the validity of future research studies and conservation strategies in urodeles.

Ribas MP, et al. (2022) Evaluation of passive integrated transponder tags for marking urodeles. *Ecological Indicators* 145, 109690.

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 - **Ana Balseiro**, Universidad de León, León, Spain;
 - **Bieneke Bron**, Norwegian Veterinary Institute, Ås, Norway.
- Conference session **in memory of Marie-Pierre Ryser-Degiorgis** introduced by a keynote from her **mentor Torsten Mörner**, Swedish Veterinary Agency.
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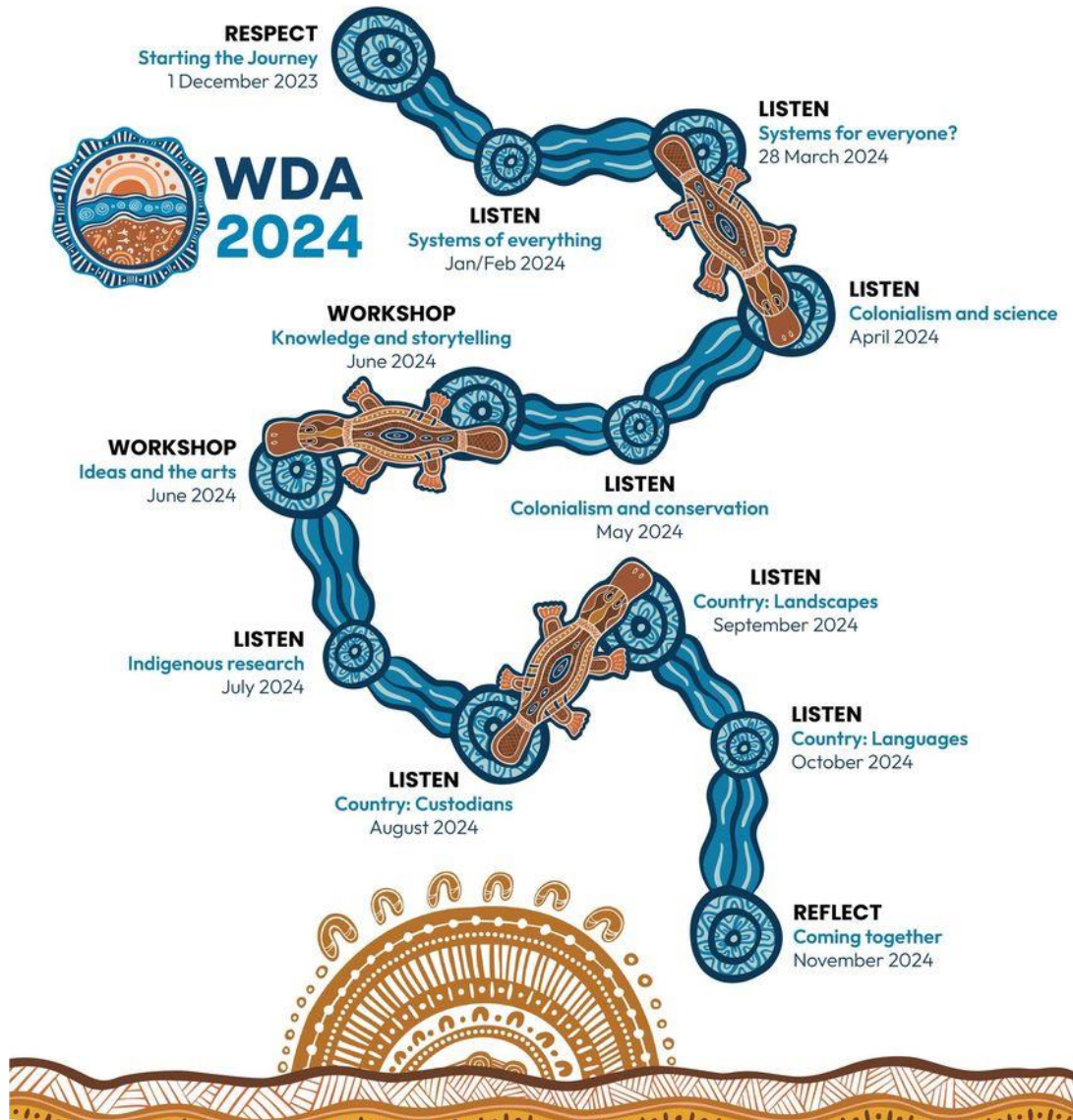
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