

Health surveillance of wildlife populations in Europe & EWDA Network



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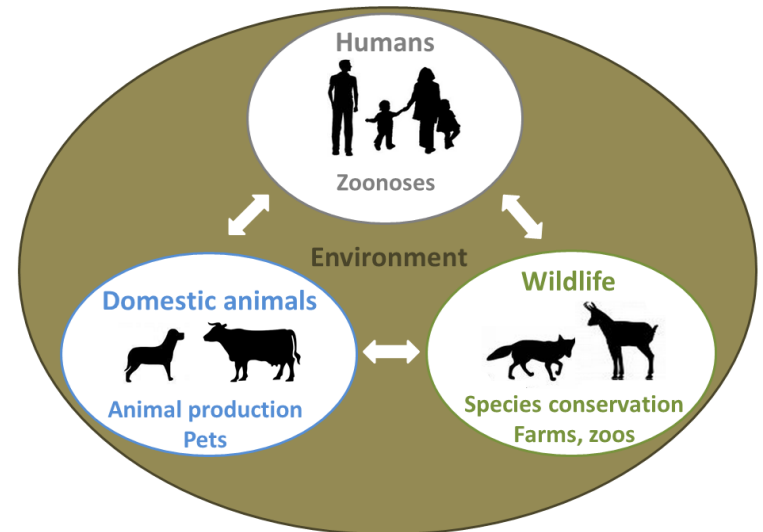
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Health surveillance & wildlife

- Increasing frequency of **emerging infectious diseases (EIDs)** in animals and humans
- EIDs **impact** on:
 - Public health, food supply, economy
 - Ecosystem health → planetary health
- Numerous EIDs have a **wildlife origin**

→ **ONE HEALTH Concept**



→ Importance of **early detection of diseases in wildlife**

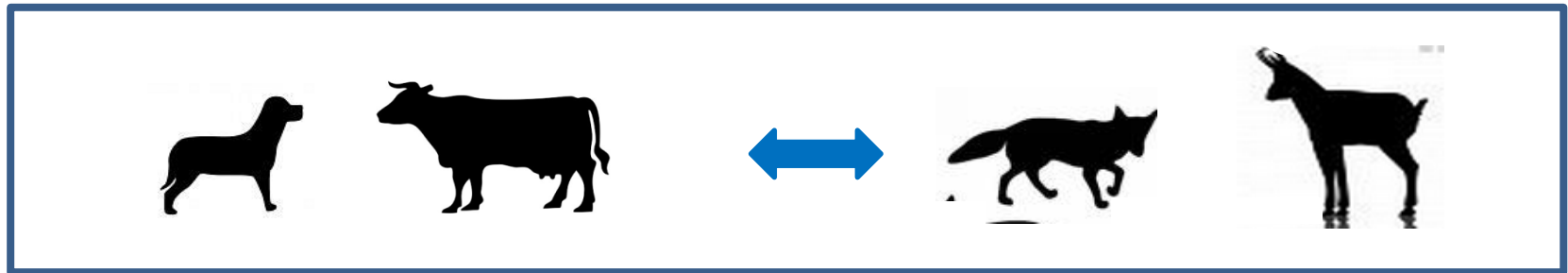
→ Importance of **wildlife health surveillance**

Global health surveillance

International Health Regulations

Reports to **World Health Organisation WHO**

Various levels of surveillance (industrialized vs. non-industrialized countries)



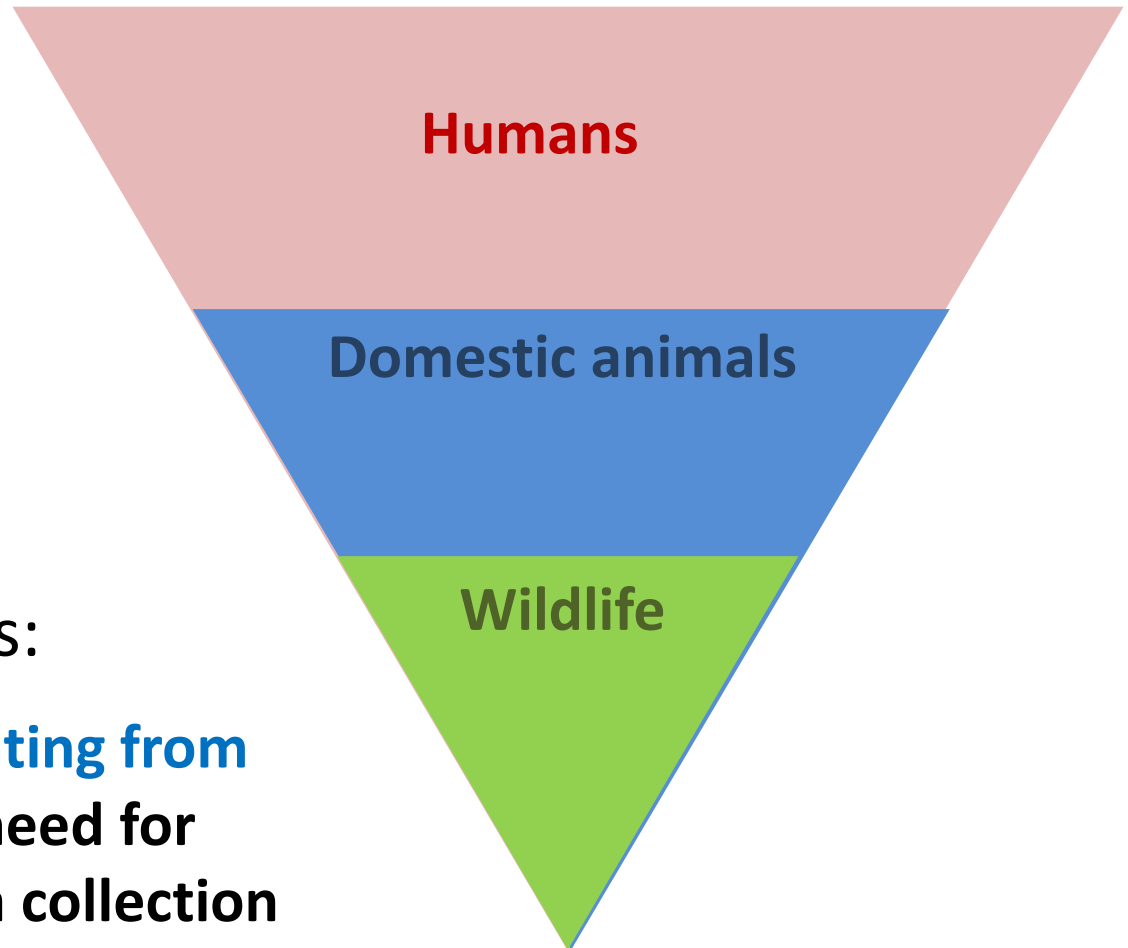
World Animal Health Organisation OIE

Domestic: Dept. Agriculture, vet services
Surveillance level variable among countries

Wildlife:

Only in some countries
Limited scope
Limited reporting (e.g. **OIE**)

Global health surveillance



Continuing challenges:

- managing **data originating from disparate sources** → need for **harmonization of data collection**
- protecting **confidentiality / data right**

Global animal health surveillance



www.oie.int

Monitoring and diagnostic harmonization:

- OIE Disease List
- Animal Health Codes + Manuals for Diagnostic Tests
- **World Animal Health Information System WAHIS**
- **Worldwide Monitoring System for Wild Animal Diseases WAHIS-Wild** (Working Group on Wildlife)

Wildlife health surveillance – additional challenges

Populations of unknown size

Access to investigation material

- Observation of cases → reporting
- Case/sample acquisition
- Quality of material or information

Decay, scavengers

Sampling strategies

resulting in representative data

- Sample size
- Stratification

Laboratory analyses

- Specific diagnostic tools
- Validated tests

Multiple species

Data interpretation

- Baseline data
- Information on biology and physiology of host
- Information on host population size and density
- Consideration of multiple risk factors
- Comparability of studies

Climate, management, cohabitation of multiple species

Wildlife health surveillance – additional challenges

Free-ranging **wildlife** does not respect national borders

→ Need for a **network** of professionals:

- exchanges of **technical information** (e.g. diagnostic tests, control)
- **early warning**

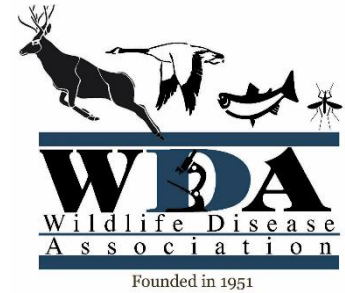


WDA & EWDA

Wildlife Disease Association

www.wildlifedisease.org

Since 1951



= **international scientific society of wildlife professionals**

Veterinarians of multiple disciplines, ecologists, and other individuals involved with wildlife diseases

→ to acquire, disseminate, and apply knowledge of the **health and diseases of wild animals in relation to their biology**, conservation, and interactions with humans and domestic animals

European Wildlife Disease Association

WDA section

www.ewda.org

Since 1993



EWDA Network development

Leighton **1995**, Rev. Sci. Tech. OIE:

Surveillance of wild animal diseases in Europe

Meetings involving selected people in **2000, 2005, 2007**

2009: ad hoc EWDA committee

→ EWDA Network for wildlife health surveillance in Europe

- Identification of **contact persons** in European countries
- Questionnaire **survey**
- Inaugural **meeting** in Brussels

Wildlife health surveillance in Europe

Surveillance programmes for wildlife health in Europe:

Self-evaluation of representatives from 25/49 European countries, 2009

“Comprehensive general surveillance”
= whole country, all species and pathogens



“Partial general surveillance”
= programme exists but with restrictions

No answer

“No general wildlife health surveillance”,
but a few targeted surveillance programmes for selected pathogens

Wildlife health surveillance in Europe in 2009

- **From 1 to > 10 programmes** per country
- Financial support by **governments**, partially also hunters, universities, farm industry, environmental associations
- Mostly **low personnel resources**: in most cases <20 incl. part-time
- Number of animals examined per year:
 - General surveillance: 30-5'000 cases / country → about 18'700 in Europe
 - Targeted surveillance: about 52'000 animals in Europe
 - Total: **approx. 70'000 / yr in Europe**

EWDA Network goals

- To improve **exchange of information** among wildlife health surveillance programmes in Europe
 - To develop **standard operating procedures** for diagnostic investigation; develop common criteria for diagnosis of wildlife disease → **harmonization**
 - To **share specialist expertise**
 - To provide **training opportunities** for wildlife health surveillance
- To provide a **level of wildlife health surveillance** that is **complementary to domestic animal and public health surveillance** in Europe (**One Health** approach)

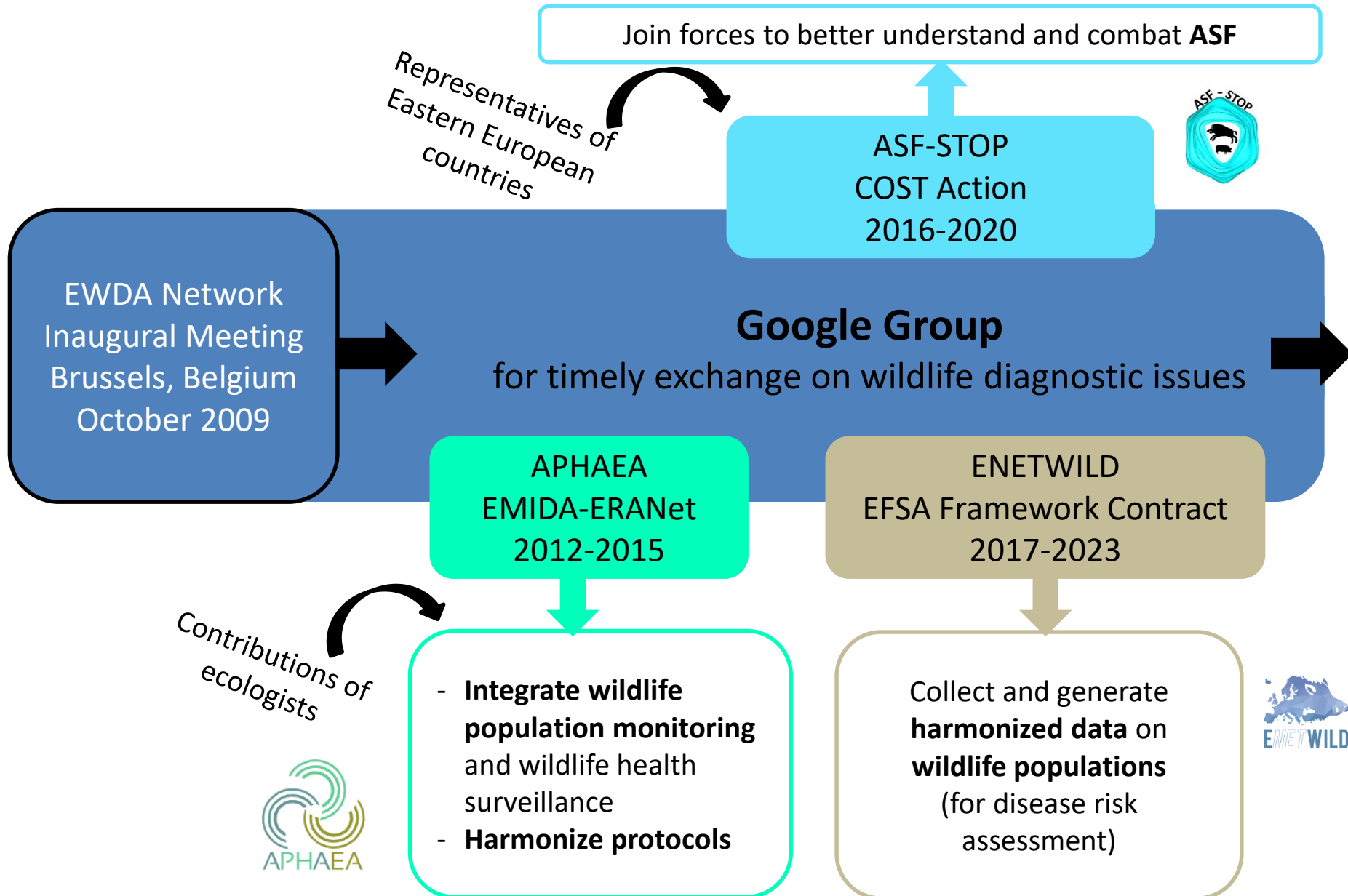
Discussion platform for wildlife health surveillance

Google group:

- Topics related to **wildlife disease emergence and diagnostics**
- **Closed group** (wildlife health experts involved in wildlife disease surveillance schemes in Europe)
- Currently 186 members; about 20-25 discussion items/yr

The screenshot shows the Google Groups interface for the 'EWDA wildlife health network'. At the top, there is a Google search bar with the text 'Nach Themen suchen' and a search button. Below the search bar, there are navigation options: 'Gruppen', a red 'NEUES THEMA' button, a refresh button, 'Alle als gelesen markieren', 'Aktionen', and 'Filter'. On the right side, there are icons for a grid, a notification bell, and a profile picture labeled 'M'. Below these, there are icons for a group of people and a gear. The main content area shows the group name 'EWDA wildlife health network' with the status 'Privat geteilt' and '30 von 225 Themen (99+ ungelesen)'. On the right, there are links for 'Verwalten', 'Mitglieder', and 'Über'. A red circle highlights the 'Mitglieder' link, with a red arrow pointing to it. Below the group name, there is a yellow notification box that says '1 Mitglied steht zur Überprüfung aus.'. A welcome message follows: 'Welcome to the EWDA wildlife health network. This network consists of people who are EWDA members and/or are involved in or want to start up a wildlife disease surveillance scheme in Europe.' At the bottom, there are links for 'Willkommensnachricht bearbeiten' and 'Willkommensnachricht löschen'. A post titled 'Call for evidence for restrictions on lead gunshot in wetlands (1)' is visible, with the author 'Von Thijs Kuiken - 1 Beitrag - 1 Aufruf' and the date '5. Juli'.

EWDA Network-related projects



EWDA/APHAEA Cards



Network for wildlife health surveillance in Europe
Diagnosis Card



African Swine Fever

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Last update

10.12.15

Etiology

African swine fever virus (ASFV), only member of the genus *Asfivirus* in the family *Asfarviridae*.

Affected species (wildlife, domestic animals, humans)

ASFV infects mainly suids: the Warthog (*Phacochoerus africanus*), the Bushpig (*Potamochoerus larvatus*), the Red River Hog (*Potamochoerus porcus*), the Giant Forest Hog (*Hylochoerus meinertzhageni*) and the Eurasian wild boar and feral/domestic pig (*Sus scrofa*).

Epidemiological characteristics and disease course

ASFV is mostly transmitted by direct contact between animals but indirect contact through cannibalism, infected fomites, food or water and through arthropod vectors is possible. ASFV is maintained in a wild cycle in Africa where the Warthog and the soft tick *Ornithodoros moubata/porcinus* are involved. Other African suids may also be occasionally involved in the epidemiology of ASFV, but more likely by direct contacts and not through infected soft tick contacts. In Europe the soft tick *O. erraticus* may act as a reservoir of ASFV. Clinical signs following infection by ASFV are only observed in domestic and wild *Sus scrofa*. Peracute, acute, chronic and subclinical manifestations of ASFV infection may happen in wild boar although only peracute, acute and subclinical forms have been reported.

Clinical signs

Gross lesions observed in naturally infected wild boar consisted of severe, diffuse haemorrhages which can be scattered in different organs but are more commonly found in lymph nodes (mesenteric, gastrohepatic and mediastinal lymph nodes), spleen and kidneys.

Gross lesions

Gross lesions observed in naturally infected wild boar consisted of severe, diffuse haemorrhages which can be scattered in different organs but are more commonly found in lymph nodes (mesenteric, gastrohepatic and mediastinal lymph nodes) and the spleen.

Histological lesions

Microscopic findings consist of severe necrosis and depletion of lymphocytes in paracortical areas of



Network for wildlife health surveillance in Europe
Species Card



Eurasian wild boar, *Sus scrofa*

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Last update

26.11.2015

Brief description of the species/group of species: basic ecology and its relevance from an epidemiological perspective

The wild boar (*Sus scrofa*) is a widespread native Palaearctic ungulate whose population has sharply increased in the last decades. It is one of the terrestrial mammals with the widest geographical range in Europe (Apollonio et al. 2010). Both through natural expansion and human (re)introductions, the species now occurs in all continents except Antarctica, and on many oceanic islands (Mitchell-Jones et al. 1999; Oliver & Leus 2008).

It occupies a wide variety of habitats, from semi-desert to tropical rain forests or temperate woodlands (e.g. Oliver & Leus 2008), and often uses agricultural land to forage (e.g. Herrero et al. 2006). Its ecological plasticity and growing population trends generate human-ungulate conflicts (Putman et al. 2011), as wild boar may cause significant damage to crops and natural vegetation (e.g. Schley et al. 2008; Bueno et al. 2009), biodiversity (Carpio et al. 2014), road traffic (e.g. Lagos et al. 2012) and livestock and public health (e.g. Gortázar et al. 2007).

This card refers specifically to Eurasian wild boar and not feral domestic swine, but the methods would apply equally to feral pigs. From an epidemiological perspective, wild boar (and feral pigs) are reservoirs for many viral, bacterial and parasitic infections (e.g. Ruiz-Fons et al. 2008).

Recommended method(s) for most accurate population estimation

The estimation of wild boar population density is a difficult task. Traditional methods are neither precise nor accurate and are limited to small areas. The APHAEA protocol (for harmonization at large scale) is demanding and relatively expensive (Luickart et al. 2010).

APHAEA protocol (for harmonization at large scale)

At large scales, i.e. regions or countries, hunting bag data are currently the only Europe-wide available index of relative wild boar abundance. Such data can be of use for time trend analyses (provided hunting effort is constant). However, hunting methods and available information are too variable and do not allow comparisons among countries. Good documentation to characterize the hunting effort should be available in order to improve data harmonization. At least, in addition to the number of hunted animals basic information should include: hunting days, total number of hunters and hunting modality.

Given the known limitations of hunting bag data, APHAEA therefore recommends using at local scale density estimations, based on scientifically robust and repeatable techniques such as thermal imaging and distance sampling, camera-trapping or drive counts, among others.

Although it is difficult to generalize for a broad range of settings, densities below 1 individual per square km will represent low densities in a European context; those between 1 and 5 wild boar per square km will represent medium densities; and those above this limit will represent high densities. This division, although arbitrary, has important implications for epidemiology and disease control.

References

- Acevedo P, Quiros-Fernandez F, Casal J, Vicente J. 2014. Spatial distribution of wild boar population abundance: Basic information for spatial epidemiology and wildlife management. *Ecol Indic* 36: 594-600.
- Acevedo P, Vicente J, Hofle U, Cassinello J, Ruiz-Fons F, Gortazar C. 2007. Estimation of European wild boar relative abundance and aggregation: a novel method in epidemiological risk assessment. *Epidemiol Infect* 135: 519-527.



EWDA/APHAEA Cards

www.ewda.org (or www.aphaea.eu)

The screenshot shows the homepage of the European Wildlife Disease Association (EWDA). The browser address bar displays the URL 108.179.213.60/~ewdaorg. The website header includes the title "EUROPEAN WILDLIFE DISEASE ASSOCIATION" and a navigation menu with the following items: HOME, ABOUT, BECOME A MEMBER, EWDA NETWORK, MEETINGS, DOCUMENTS, CANDIDATES & CAREER OPPORTUNITIES, and LINKS. The "DOCUMENTS" menu is expanded, showing a list of options: BULLETIN & NEWSLETTERS, DIAGNOSIS CARDS, SPECIES CARDS, ANNUAL EWDA REPORTS, and OTHER DOCUMENTS. Two red arrows point from the "DIAGNOSIS CARDS" and "SPECIES CARDS" options to the corresponding images in the banner below. The banner features four images: an eagle in flight, a green frog on a leaf, a herd of deer in a field, and a person wearing blue gloves. Below the banner, the main content area has a large "HOME" heading, a welcome message, and a paragraph about the association's mission. On the right side, there is a search box labeled "SEARCH THIS SITE" and a "NEWS" section.

EUROPEAN WILDLIFE DISEASE ASSOCIATION

HOME ABOUT BECOME A MEMBER EWDA NETWORK MEETINGS DOCUMENTS CANDIDATES & CAREER OPPORTUNITIES LINKS

BULLETIN & NEWSLETTERS
DIAGNOSIS CARDS
SPECIES CARDS
ANNUAL EWDA REPORTS
OTHER DOCUMENTS

HOME

Welcome to the website of the European Wildlife Disease Association!

The European Wildlife Disease Association (EWDA) seeks to provide a forum for the exchange of information on wildlife diseases and their management. Through the provision of opportunities for networking, collaborative research and training we seek to raise the profile of wildlife disease research and management.

SEARCH THIS SITE

Search ...

NEWS

Other EWDA Network outputs

- **Summary meeting Brussels** on the level of wildlife health surveillance in European countries:

Ryser-Degiorgis M-P, Gavier-Widén D, Gortazar-Schmidt C, Kuiken T. Summary of data presented at the Inaugural Meeting of the EWDA Network for Wildlife Health Surveillance in Europe. Brussels, Belgium, 15 October 2009. 7 pp. (available at www.ewda.org)

- **Scientific articles:**

Kuiken T, Ryser-Degiorgis MP, Gavier-Widén D, Gortázar C. **Establishing a European network for wildlife health surveillance.** Rev Sci Tech. 2011, Dec;30(3):755-61.

Gavier-Widén D, Gortázar C, Ståhl K, Neimanis AS, Rossi S, Hård av Segerstad C, Kuiken T. **African swine fever in wild boar in Europe: a notable challenge.** Vet Rec. 2015 Feb 21;176(8):199-200.

Sonnenburg J, Ryser-Degiorgis MP, Kuiken T, Ferroglio E, Ulrich RG, Conraths FJ, Gortázar C, Staubach C; APHAEA project partners. **Harmonizing methods for wildlife abundance estimation and pathogen detection in Europe-a questionnaire survey on three selected host-pathogen combinations.** BMC Vet Res. 2017 ;13(1):53.

- **Source of information for yearly OIE report** (Working Group on Wildlife)

EWDA Network – recent and future steps forward

Since 2016: **permanent** EWDA committee

Committee members:

- 6 **EWDA members** from different countries and with various expertise

Task distribution:

- Chair (reports to EWDA Board)
- Secretary (minutes, proceedings)
- Card editors
- Moderator of Surveillance Platform (Google group)
- Moderator of WildList

Meetings: annually (jointly) → next in Greece, 26 August 2018

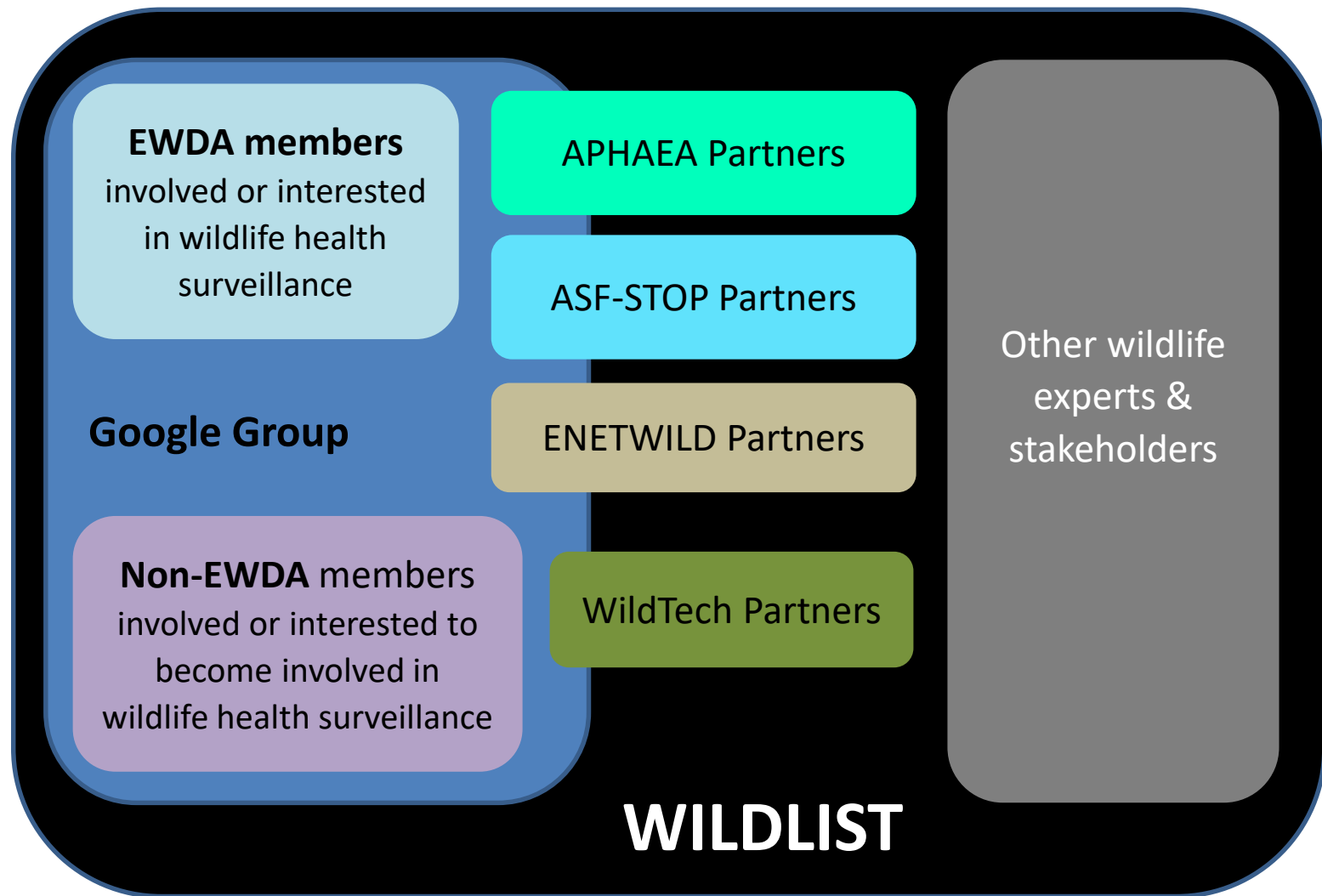
EWDA Network WildList

- ❖ Wildlife health projects:
 - Aim: **to develop a network of wildlife experts**
 - **Limited in time** → efforts to develop the existing network ≠ sustainable expansion
 - Partners' lists **overlap with the Google group**
 - ...but also include **other colleagues who may not be concerned by the discussions** of the Google group



- ❖ Wish to have a **network partners' list** indicating the **area of expertise** of each member

EWDA Network WildList



→ sustainable network beyond time-limited projects

Wildlist - Membership

- **EWDA members** and **non EWDA members** with expertise in **wildlife** (incl. Google group, APHAEA, ASF-STOP, ENETWILD partners, other wildlife experts in Europe)
- Application and communication through **moderator**
- Member's **profile**:
 - First name, last name
 - Country
 - Email address
 - Institution, position
 - Expertise: field and degree of education, disease(s), wildlife species
- Possibility to **update** one's profile at any time (email to list manager / webmaster)



Wildlist - Goals

- To **facilitate contacts** and new collaborations
- To **distribute a wide range of information** (rather than to launch group discussions)
 - announcement of meetings and courses
 - job advertisements
 - other wildlife-related topics

EUROPEAN WILDLIFE DISEASE ASSOCIATION

[HOME](#) [ABOUT](#) [BECOME A MEMBER](#) [EWDA NETWORK](#) [MEETINGS](#) [DOCUMENTS](#) [CANDIDATES & CAREER OPPORTUNITIES](#) [LINKS](#)

WILDLIST

Show entries

Search:

Institute	First name	Surname	Country	Field and degree of education	Emailaddress	Wildlife species
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SEARCH THIS SITE

Search ...



NEWS

How to become a member (EWDA and/or Network)

EWDA Network

- WildList
- Google group

EWDA Member

www.ewda.org



Non EWDA member

WildList: any wildlife-related expertise
Google group: Involvement in or aiming to set up a wildl. health surv. progr.

WDA Member

www.wildlifedisease.org



Journal of Wildlife Diseases
Newsletters
Reduced conference fees
Grants

How to become a member (EWDA and/or Network)

Cards

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EUROPEAN WILDLIFE DISEASE ASSOCIATION

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WILDLIST
EWDA GOOGLE GROUP

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NEWS

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