

Establishing a European network for wildlife health surveillance

T. Kuiken^{(1)*}, M.-P. Ryser-Degiorgis⁽²⁾, D. Gavier-Widén⁽³⁾ & C. Gortázar⁽⁴⁾

(1) Department of Virology, Erasmus Medical Centre, Dr Molewaterplein 50, 3015 GE Rotterdam, the Netherlands

(2) Centre for Fish and Wildlife Health, Institute of Animal Pathology, University of Bern, Länggass-Strasse 122, Postfach 8466, 3001 Bern, Switzerland

(3) National Veterinary Institute, Travvägen 20, SE-751 89 Uppsala, Sweden

(4) National Wildlife Research Institute IREC (CSIC-UCLM-JCCM), Ronda de Toledo s/n, Ciudad Real 13071, Spain

*Corresponding author: Department of Virology, Erasmus Medical Centre, P.O. Box 2040, 3000 CA Rotterdam, the Netherlands

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Summary

Surveillance of wildlife health in Europe remains informal and reporting wildlife diseases is not yet coordinated among countries. At a meeting in Brussels on 15 October 2009, delegates from 25 countries provided an overview of the current status of wildlife health surveillance in Europe. This showed that every year in Europe over 18,000 wild animals are examined as part of general surveillance programmes and over 50,000 wild animals are examined in the course of targeted surveillance. The participants at the Brussels meeting agreed to set up a European network for wildlife health surveillance. The goals of this network, which was established in February 2010, are to improve procedures for the rapid exchange of information, harmonise procedures for investigation and diagnosis of wildlife diseases, share relevant expertise, and provide training opportunities for wildlife health surveillance.

Keywords

Europe – General surveillance – Information exchange – Network – Procedure harmonisation – Targeted surveillance – Training – Wildlife health.

Background

The concept of conducting health surveillance in wildlife is not new (1, 15), but recently interest in wildlife health surveillance has been increasing. Several countries have started wildlife health centres, while other countries, in which such centres already existed, have stepped up their activities. International organisations and editorials in leading medical and veterinary journals have recently stressed the importance of such activities. For example, an editorial from the Director General of the World Organisation for Animal Health (OIE) states: 'Surveillance of wildlife diseases must be considered equally as important as surveillance and control of diseases in domestic animals' (17).

There are several reasons for this increasing interest in wildlife health surveillance. A major factor has been the increased awareness of the role of wild animals in infectious diseases of humans (3, 11). Examples are severe acute respiratory syndrome (SARS), influenza, West Nile fever (14), Lyme disease, *Hantavirus* infection, and alveolar echinococcosis. Another reason for the growing interest is the increased documentation of the involvement of wild animals in the epidemiology of domestic animal diseases (2, 6), such as Newcastle disease, brucellosis, and bovine tuberculosis. A third reason is that disease is an increasing threat to wild animal populations (4, 7). For example, chytrid fungi have been associated with a decrease in amphibian populations (8), die-offs of marine mammals have been caused by morbillivirus infections (16), and

environmental pollutants such as polychlorinated biphenyls can have a detrimental effect on wildlife health (18).

Wildlife health surveillance is defined, in accordance with the OIE *Terrestrial Animal Health Code*, as the systematic ongoing collection, collation and analysis of information related to wildlife health and the timely dissemination of information so that action can be taken (19). It can be divided into general surveillance (sometimes referred to as passive surveillance) and targeted surveillance (sometimes referred to as active surveillance). General surveillance is the pathological examination of animals found dead or moribund. Targeted surveillance is the testing of animals for the presence of specific pathogens.

Effective wildlife health surveillance requires an effective international network. Wild animal populations do not respect national borders, and wildlife disease events occurring in one country in Europe may provide advance warning to neighbouring countries of a possible future disease event in their territories. The OIE has a permanent working group on wildlife diseases (further information is available at www.oie.int). One of its activities is the annual collation of data from OIE Member Countries on notifiable and non-notifiable diseases in wildlife. This provides a valuable overview of disease events and pathogens recorded in wildlife, and the recent improvement of data collection through the World Animal Health Information Database (www.oie.int) will speed up the dissemination of this information. Professional associations such as the Wildlife Disease Association (www.wildlifedisease.org) and the European Section of the Wildlife Disease Association (EWDA) (www.ewda.org) enhance the collaboration and exchange of information among wildlife health specialists.

An overview of the status of wildlife health surveillance in Europe was first provided in 1995 (13). Since then, there have been several meetings to update this overview and promote international collaboration on wildlife health surveillance in Europe. These meetings have included:

- ‘European network on wildlife as reservoirs of pathogens including zoonoses’, Madrid, Spain, 2000
- ‘Workshop on wildlife disease surveillance’, Ciudad Real, Spain, 2005
- ‘Controlling wildlife zoonoses without eradicating the reservoir’, Edinburgh, United Kingdom, 2007.

Although these meetings improved cooperation and information exchange among wildlife disease researchers in European countries, the creation of a European network for wildlife health surveillance had yet to be settled. Also, there was no overview on the current status of wildlife health surveillance in Europe. Therefore, the EWDA organised a meeting in Brussels on 15 October 2009 to set

up such a network and to update knowledge on the status of wildlife health surveillance among European countries.

Meeting of wildlife health experts from 27 European countries

The first EWDA meeting for wildlife health surveillance in Europe was held at the Queen Astrid Military Hospital, Brussels, Belgium, and was hosted by the Belgian Ministry of Defence and the Belgian Wildlife Disease Society. In total, 59 people from 27 European countries and the United States attended the meeting. Based on standard questionnaires distributed prior to the meeting, speakers from 25 European countries (Table I) presented summaries of the status of wildlife health surveillance in their countries. No information was obtained from the remaining 24 countries in Europe.

Current status of wildlife health surveillance in Europe

Based on the country summaries, the following overview appeared for the status of wildlife health surveillance in Europe. This overview is not meant to be definitive but gives a rough outline of the current situation (for details, see also the meeting report [5]).

The questionnaire asked respondents to categorise their country's surveillance level using classifications drawn up by Leighton (13):

- Level 1: no general surveillance (i.e. absence of a programme of general wildlife health surveillance, but limited targeted surveys of selected wild animal species for a few specified diseases).
- Level 2: partial general surveillance (i.e. a wide range of programmes including detection, diagnosis and management of disease-related information, but restricted in various ways)
- Level 3: comprehensive general surveillance (i.e. one or several programmes covering the entire country and being comprehensive with respect to species of mammals and birds examined and types of diseases assessed; Table I, Fig. 1)

Speakers from six of 25 countries indicated that there is a comprehensive general surveillance scheme in their country. Speakers from eight countries indicated that they

Table I
Summary of responses to the questionnaire on wildlife surveillance

25 countries participated in the survey

Country ^(a)	EU status ^(b)	Area (km ²)	Inhabitants (millions)	Level of surveillance ^(c)	Funding sources	Number of programmes	Number of people ^(d)
Albania	O	28,748	3.6	1	None	0	1
Andorra	O	468	0.07	3	Gov.	1	1
Austria	M	83,870	8.3	1	Gov. + Proj.	2	5
Belgium	M	30,528	10.7	2	Gov. + Hunt. + Univ.	≥10	5
Bosnia and Herzegovina	O	51,209	4.6	1	Gov	1	2
Denmark	M	43,094	5.4	2	Gov.	1	0
Finland	M	338,000	5.3	1	Gov.	4	2
France	M	550,000	63.7	3	Gov. + Hunt.	8	3
Germany	M	356,854	82.5	1	Gov. + NGOs	2	0
Greece	M	131,957	11.2	1	Gov.	6	0
Hungary	M	93,000	10.1	2	Gov.	2	1*
Italy	M	301,263	57.3	2	Gov.	1	10
Luxembourg	M	2,586	0.5	1	Gov.	1	0
Netherlands	M	41,526	16.4	2	Gov. + Farm	5	10–20*
Norway	O	323,802	4.7	3	Gov. + Hunt	2 (+4)	4
Portugal	M	92,079	10.4	2	Gov. + Hunt. + EO	13	20
Romania	M	237,500	21.5	1	Gov. + Univ.	13	0
Russia	O	17,075,200	141	2	Gov.	3	>100*
Serbia	O	77,474	8	1	None (Hunt)	2	0
Slovenia	M	20,273	2.0	1	Gov. + Hunt.	1	1
Spain	M	504,782	45.3	2	Gov. + Univ.	>5	10
Sweden	M	449,964	9.2	3	Gov.	2	8
Switzerland	O	41,290	7.6	3	Gov. + Univ. + Proj.	2 (+4)	4–5
Turkey	C	780,580	70.5	1	Gov. + Proj.	Unknown	0
United Kingdom	M	244,820	60.4	3	Gov. + Proj. + EO	>10	3

a) Representatives from Croatia and the Czech Republic attended the meeting but did not provide a summary

b) Source: europa.eu/abc/european_countries/eu_members/index_en.htm

c) Level 1: no general surveillance, but some degree of surveillance for a few specified diseases; Level 2: partial general surveillance, i.e. wide range of programmes but restriction in various ways (e.g. geographical regions or covered species); Level 3: comprehensive general surveillance (entire country, species covered, and investigated diseases)

d) People in full-time positions

C: Candidate

EO: Environmental organisations

Farm: Farm industry

Gov: Governmental

Hunt: Hunters

M: Member

NGO: non-governmental organisation

O: Other (non-member)

Proj: Research projects

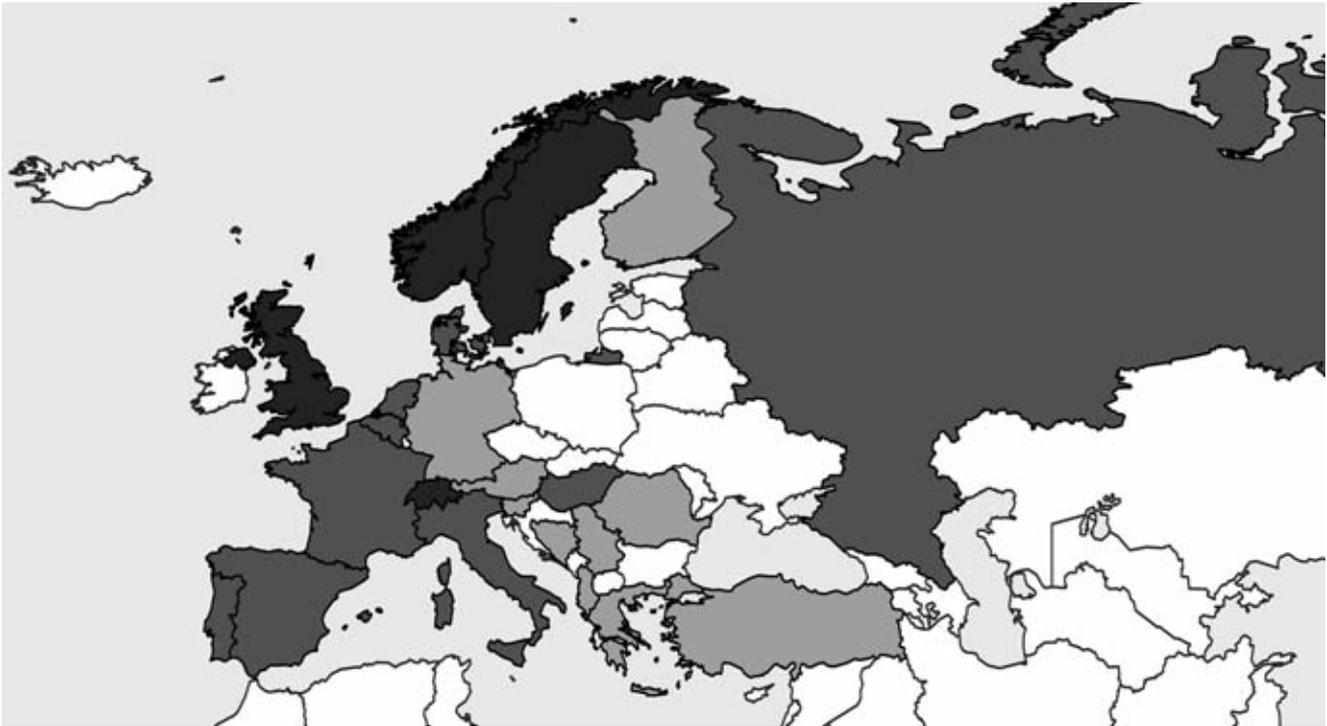
Univ: University

* Estimation

have partial surveillance. These countries have a wide range of programmes but they are limited in their duration and geographical coverage, they do not include the full range of species and diseases in the country and they are not sufficiently coordinated to provide a nationwide overview of wildlife health. Speakers from 11 countries answered that they have no general surveillance but do perform targeted surveys. Specified diseases for these surveys were rabies (nine out of 12 countries that answered this question), avian influenza (six), tuberculosis (four), classical swine fever (four), trichinellosis (four), paratuberculosis (three), transmissible spongiform encephalopathy (three), echinococcosis (two), bluetongue (two), ecto- and endoparasites without further

specification (two), Aujeszky's disease, porcine circovirus infection, encephalomyocarditis in wild boar and rodents, European brown hare syndrome, tularemia, and Crimean-Congo haemorrhagic fever (one country each).

The number of people employed, number of programmes operating per country, and sources of funding vary among the 25 European countries. The number of people employed full-time in wildlife health surveillance is usually below 10, but ranges widely (Table I). The number of wildlife surveillance programmes ranges from none to over ten, with just over half of respondents (13) saying that they have one or two wildlife surveillance programmes. By far the most important funding for wildlife health surveillance



White: no data

Dark grey: comprehensive general wildlife health surveillance

Medium grey: partial general wildlife health surveillance (wide range of programmes but restricted in various ways)

Light grey: no general wildlife health surveillance, but some degree of targeted surveillance for a few specified diseases

Categories based on Leighton (13)

Fig. 1

Map of Europe depicting the level of wildlife health surveillance according to a self-evaluation of the participating countries ($n = 25$)

is provided by the national government (23 countries), with additional funding from hunter organisations, universities, research projects, non-governmental organisations, the agricultural industry, and environmental organisations.

The intensity of surveillance, both general and targeted, also varies greatly per country (Table II). In general surveillance programmes the number of animals examined ranges among countries from 30 to 5,000 per year. Typically, such pathological examinations consist of macroscopic examination, supplemented by histopathological, bacteriological, and parasitological analyses. Virological and toxicological analyses are less frequently performed. In targeted surveillance programmes the number of animals examined ranges among countries from tens to tens of thousands per year. The survey results showed that, in total, over 18,000 wild animals are examined by general surveillance and over 50,000 wild animals are examined by targeted surveillance on a yearly basis.

Establishing a European network

There was consensus among meeting participants that wildlife health surveillance in Europe would benefit from a more formal network of people actively participating in this field. An *ad hoc* committee was established to set up such a network for wildlife health surveillance in Europe. The long-term goals of this network are to improve the exchange of information among wildlife health surveillance programmes in Europe; develop common operating procedures for diagnostic investigation of wildlife; develop common criteria for diagnosis of wildlife disease; share expertise; and provide training opportunities in wildlife health surveillance. In this way, the network will hopefully facilitate the setting up of wildlife health surveillance in countries where it is absent.

The wildlife health network was set up in February 2010, based on the people who attended or expressed interest in

Table II
Estimated numbers of animals examined per year per country

Country ^(a)	Healthy cases	Pathological cases ^(b)	Pathological cases per km ² × 10 ⁻⁴
Andorra	110	80	1,709
Slovenia	2,000	1,000	493
Portugal	6,600	2,000	217
Denmark	300–1,000	800–1,000	209
Belgium*	2,000	300	178
Austria	9,000	1,000+	119
Switzerland	Up to 1,000	400	97
France	>10,000	5,000	91
Italy	Not known	1,700	56
Romania	2,200–2,800	1,100–1,400	53
Norway	1,000–2,000	1,000–1,500	37
Netherlands	15	150	36
Sweden	3,000–4,000	1,500	33
United Kingdom	70	650–750	29
Spain	5,000	1,000	20
Albania	100	50–60	19
Finland	500	500	15
Greece	30	70–150	8
Bosnia and Herzegovina	100–150	30–50	1
Russia	100,000**	1,000	<1

a) Numbers were unknown for five countries that participated in the survey: Germany, Hungary, Luxembourg, Serbia and Turkey

b) Pathological case: a case in which animals have clinical signs of disease or are found dead

* Wallonia only, figures for Flanders were not known

** Estimation

the Brussels meeting. As its first action, the committee set up an email discussion list for people involved in European wildlife health surveillance in order to facilitate rapid exchange of information and ideas (groups.google.com/group/ewda-network/about). A second action was to begin formulating common criteria for the diagnosis of the most important wildlife diseases in Europe (sites.google.com/site/ewdawebiste/diagnosis-cards).

This network of wildlife health surveillance, together with already existing networks for disease surveillance in livestock and humans, will work towards an integrated approach to health problems in humans and animals in accordance with the 'One World, One Health' initiative (10, 12). This includes overcoming the difficulties linked with regulations that are mostly based on disease risk assessments centred on humans and domestic animals rather than wildlife. Such a global approach is becoming more and more necessary, as the impact of human society on the world increases exponentially and diseases in humans, domestic animals, and wildlife become ever more interconnected (9).

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Mise en place d'un réseau européen de surveillance sanitaire de la faune sauvage

T. Kuiken, M.-P. Ryser-Degiorgis, D. Gavier-Widén & C. Gortázar

Résumé

La surveillance sanitaire de la faune sauvage en Europe est exercée de manière informelle, sans réelle coordination entre les pays pour notifier l'apparition des maladies survenant chez les animaux sauvages. Lors d'une réunion tenue à Bruxelles le 15 octobre 2009, les délégués de 25 pays européens ont fait le point sur la situation actuelle de la surveillance sanitaire de la faune sauvage en Europe. Ce bilan a fait apparaître que plus de 18 000 animaux sauvages sont examinés chaque année en Europe dans le cadre des programmes de surveillance générale, auxquels s'ajoutent plus de 50 000 animaux sauvages examinés lors d'opérations de surveillance ciblée. Les participants de la réunion tenue à Bruxelles ont décidé de mettre en place un réseau européen de surveillance sanitaire de la faune sauvage. Les objectifs de ce réseau, qui a vu le jour en février 2010, sont d'améliorer les procédures en vue d'une diffusion rapide des informations, d'harmoniser les opérations de dépistage et de diagnostic des maladies affectant les animaux sauvages, de mettre en commun l'expertise pertinente et d'offrir des possibilités de formation dans le domaine de la surveillance sanitaire de la faune sauvage.

Mots-clés

Échange d'informations – Europe – Formation – Harmonisation des procédures – Réseau – Santé de la faune sauvage – Surveillance ciblée – Surveillance générale.



Creación de una red europea de vigilancia sanitaria de la fauna silvestre

T. Kuiken, M.-P. Ryser-Degiorgis, D. Gavier-Widén & C. Gortázar

Resumen

La vigilancia sanitaria de la fauna silvestre sigue revistiendo un carácter informal en Europa, y apenas existe coordinación entre los países por lo que respecta a la notificación de las enfermedades que afectan a esos animales. En un encuentro celebrado en Bruselas el 15 de octubre de 2009, delegados de 25 países pasaron revista a la situación actual de Europa en la materia. De sus datos se desprende que cada año, en el continente, son sometidos a examen más de 18.000 animales silvestres dentro de programas de vigilancia general, y más de 50.000 como parte de actividades de vigilancia selectiva. Los participantes en la reunión de Bruselas acordaron establecer una red europea de vigilancia sanitaria de la fauna silvestre, que fue instituida en febrero de 2010 y dotada de los siguientes objetivos: mejorar los procedimientos para un rápido intercambio de información; armonizar protocolos de investigación y diagnóstico de las enfermedades de la fauna silvestre; compartir experiencia en la materia; y ofrecer oportunidades de formación sobre el tema.

Palabras clave

Armonización de protocolos – Europa – Formación – Intercambio de información – Red – Sanidad de la fauna silvestre – Vigilancia general – Vigilancia selectiva.



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