WOAH Collaborative Centre Reports Activities 2023
Activities in 2023
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Centre Information

Title of WOAH Collaborating Centre	Epidemiology, Training and Control of Emerging Avian Diseases
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Name Director of Institute (Responsible Official):	Dr Antonia Ricci (General Director of the Instituto Zooprofilattico Sperimentale delle Venezie)
Name (including Title and Position) of Head of the Collaborating Centre (WOAH Contact Point):	Dr Paolo Mulatti, DVM, MSc, PhD, Senior Epidemiologist
Name of the writer:	Dr Paolo Mulatti

TOR1 AND 2: SERVICES PROVIDED

1. Activities as a centre of research, expertise, standardisation and dissemination of techniques within the remit of the mandate given by WOAH

Category	Title of activity	Scope
Disease control (true)	Control measures for HPAI introduction and spread in the poultry production sector	Support to the Italian MoH for the drafting of Provisions to prevent the introduction and spread of AI into, and within, the poultry sector, following the implementation of the new European Animal Health Law (Regulation 429/2016/EC)
Epidemiology, surveillance, risk assessment, (true)	National surveillance plan for avian influenza (AI)	Support the planning of 2023 AI surveillance activities in Italy by using a risk-based approach to define the risk level of different regions and poultry categories and the sample size for both domestic poultry and wild birds; Support to the Italian Ministry of Health, to assess changes of AI surveillance measures following the implementation of the new European Animal Health Law (Regulation 429/2016/EC)
Zoonoses (true)	Collaboration with the Regional Public Health Service for the prevention of WND transmission to humans	Based on information of WNV circulation in 2021 in Veneto and Friuli Venezia Giulia regions, definition of the best time interval to implement WNV controls on human blood donors maximizing the benefit-cost ratio.
		Scientific support for implementation of diagnostic and biosecurity protocols in Wild life Rescue Centres

Wildlife (true)	Implementation of network for collaborating with Wild life Rescue Centres located in geographical areas classified at high-risk of AI exposure	targeting to avoid introduction and spread of HPAI infection among animal patients (avian and mammal species) and pathogen dissemination into the environment. Specific protocol for the workers of the Wild life Rescue Centeres for preventing human infection with potential zoonotic HPAI strains, and pathogen dissemination into the environment/domestic birds
Avian diseases (true)	Pathogens detection in biological matrices sampled from wild birds (active-passive surveillance) through collaboration with others National Research Institutions	Detection of relevant pathogens in wild birds harbouring the local wildlife, transboundary production (interface wild-domestic) and zoonotic potential
Animal welfare (true)	Risk factors associated with keel bone and foot pad disorders in laying hens	Evaluation of the prevalence of keel bone disorders (severity of deviation and/or deformation and/or protrusion) and foot pad lesions in laying hens (white feathered breed vs brown feathered breed) reared in different housing systems (aviary system vs cage system vs free range), by visual scoring at the abattoir. Analysis of significant risk factors in at least 10 batches of 100 animals each.
Diagnosis, biotechnology and laboratory (true)	Development of new diagnostic methods to implementing the survey on avian mycoplasmosis	Development of a new diagnostic method for the diagnosis of Mycoplasma spp. including avian mycoplasmosis. Application and standardization of minimum inhibitory concentration in avian mycoplasma species.
Disease control (true)	Control measures for LPAI in domestic birds	Support to the Italian MoH and local veterinary authorities in defining the prevention measures for the uncontrolled spread of LPAI within the national poultry sector, following the implementation of the new European Animal Health Law (Regulation 429/2016/EC)
Disease control (true)	GIS and spatial analysis services	Support the management of 2022-2023 H5N1 Highly Pathogenic Avian Influenza (HPAI) emergency by means of GIS applications, technical support services, desktop GIS and web-based GIS services
Disease control (true)	West Nile Disease (WND) control activities in Northeast Italy	Coordination of 2023 WND surveillance and control activities in Northeast Italy. The main aim is to obtain information on the circulation of WND virus in the area through i) entomological surveillance, ii) clinical surveillance of WND virus in equine farms, iii) passive and active surveillance of WND virus in wild birds
Epidemiology, surveillance, risk assessment (true)	Epidemiological support for HPAI in domestic poultry	Support for the collection and processing of epidemiological information and risk contacts during outbreaks of HPAI in poultry farms during the H5N1 HPAI epidemic in northern Italy; Application of statistical and mathematical models to assess the potential spread of HPAI, to further inform the implementation of disease control measures
Zoonoses (true)	National surveillance plan for Aborvirus infections	Early warning for WNV circulation in vectors, equine and wild birds acting as trigger factor for organs transplantation and/or blood transfusion in human
Wildlife (true)	Active surveillance for avian influenza (AI) in wild birds	Implementation of an active surveillance plan in wild birds in the geographical areas classified at high-risk of AI exposure, by means of tracheal, cloacal and feather swab collection from trapped wild waterfowl.
		Implementation of a plan to monitor the AI presence

Wildlife (true)	Active surveillance for AI in hunted wild birds	in asymptomatic hunted birds, in geographical areas considered exposed to a higher risk of AI introduction and with higher dwild bird densities
Wildlife (true)	Study of ornithocoenosis in proximity to poultry farms	Application of Species Distribution Models to assess the geographical distribution of wild bird species most commonly detected in proximity to poultry farms and the potential role in the spread of Avian Influenza Viruses
Avian diseases (true)	Study of Minimum inhibitory concentration in avian bacterial pathogens	Monitoring the minimum inhibitory concentration in avian bacterial pathogens isolates in our competence area

TOR3: HARMONISATION OF STANDARDS

2. Proposal or development of any procedure that will facilitate harmonisation of international regulations applicable to the main fucus area for which you were designated

Proposal title	Scope/Content	Applicable area
Implementation of a standard for the collection and sharing of zone geographic component (GeoZone)	The aim of the project is to develop a data model to spatially represent a zone, to explore both its applicability and validity, and to evaluate the resources needed for its full-scale implementation. GeoZone project – second year of activity: Development of the GeoZone data product specification document	Training and education health management

3. In exercising your activities, have you identified any regulatory research needs* relevant for WOAH?

No

4. Did your Collaborating Centre maintain a network with other WOAH Collaborating Centres (CC), Reference Laboratories (RL), or organisations designated for the same specialty, to coordinate scientific and technical studies?

Yes

Name of WOAH CC/RL/other organisation(s)	Location	Region of networking Centre	Purpose
Italian Institute for Environmental Protection and Research (ISPRA)	Italy	Europe	Desiging and optimising Surveillance activities for Avian Influenza in Wild Birds

TOR4 AND 5: NETWORKING AND COLLABORATION

5. Did your Collaborating Centre maintain a network with other WOAH Collaborating Centres, Reference laboratories, or organisations in other disciplines, to coordinate scientific and technical studies?

Yes

Name of WOAH CC/RL/other organisation(s)	Location	Region of networking Centre	Purpose
WOAH Collaborating Centre for Epidemiology, modelling and surveillance	Italy	Europe	Partnership in the GeoZone WOAH Project
WOAH Collaborating Centre for			

Diagnosis, Epidemiology and Control of Animal Diseases in Tropical Regions	France	Europe	Partnership in the GeoZone WOAH Project
WOAH Collaborating Centre for Veterinary Epidemiology and Public Health	New Zealand	Asia and Pasific	Partnership in the GeoZone WOAH Project
WOAH Collaborating Centre for Animal Disease Surveillance Systems, Risk Analysis and Epidemiological Modelling	United States of America	Americas	Partnership in the GeoZone WOAH Project
WOAH Collaborating Centre for Diagnosis and Control of Animal Diseases and Related Veterinary product assessment in Asia	Japan	Asia and Pasific	Partnership in the GeoZone WOAH Project
WOAH Collaborating Centre for Diseases at the Animal/Human Interface	Italy	Europe	Studies and training activities on West Nile Virus
WOAH amd FAO Reference Laboratory for Avian Influenza and Newcastle Disease	Italy	Europe	Studies and training activities on Avian Influenza and Newcastle Disease

TOR6: EXPERT CONSULTANTS

6. Did your Collaborating Centre place expert consultants at the disposal of WOAH?

Yes

NAME OF EXPERT	KIND OF CONSULTANCY	SUBJECT
Matteo Mazzucato	WOAH-WHAIS administrative boundaries geospatial data update	To support WOAH GIS technician in updating the WOAH-WHAIS administrative boundaries geospatial data
Claudia Casarotto	WOAH-WHAIS administrative boundaries geospatial data update	To support WOAH GIS technician in updating the WOAH-WHAIS administrative boundaries geospatial data
Nicola Ferrè	WOAH-WHAIS administrative boundaries geospatial data update	To support WOAH GIS technician in updating the WOAH-WHAIS administrative boundaries geospatial data

TOR7: SCIENTIFIC AND TECHNICAL TRAINING

7. Did your Collaborating Centre provide advice/services to requests from Members in your main focus area?

No

8. Did your Collaborating Centre provide scientific and technical training, within the remit of the mandate given by WOAH, to personnel from WOAH Members?

Yes

a) Technical visit : 2

b) Seminars : 1

c) Hands-on training courses: 1

d) Internships (>1 month) : 0

TYPE OF TECHNICAL TRAINING PROVIDED (A, B, C OR D)	CONTENT	COUNTRY OF ORIGIN OF THE EXPERT(S) PROVIDED WITH TRAINING	NO. PARTICIPANTS FROM THE CORRESPONDING COUNTRY
B	On-line seminar - Towards a better understanding of the HPAI virus changing nature', webinar for the WOAH Sub-Regional Representation for Arabian Gulf; 23rd of August 2023.	United Arab Emirates	60
C	Webinar - GIS course: The use of GIS in animal disease response - https://www.izsvenezie.com/online-training-course-gis-oie/	Italy	20
A	Workshop GeoZone: Development of a standard for the collection and sharing of zone geographic component	United States of America	10
A	Workshop GeoZone: Development of a standard for the collection and sharing of zone geographic component	Japan	15

TOR8: SCIENTIFIC MEETINGS

9. Did your Collaborating Centre organise or participate in the organisation of scientific meetings related to your main focus area on behalf of WOAH?

No

TOR9: DATA AND INFORMATION DISSEMINATION

10. Publication and dissemination of any information within the remit of the mandate given by WOAH that may be useful to Members of WOAH

a) Articles published in peer-reviewed journals:

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Study of the Interface between Wild Bird Populations and Poultry and Their Potential Role in the Spread of Avian Influenza. Microorganisms 2023, 11, 2601. https://doi.org/10.3390/microorganisms11102601

An integrated system for the management of environmental data to support veterinary epidemiology. Front. Vet. Sci.. Sec. Veterinary Epidemiology and Economics Volume 10:1069979 - 2023 doi: 10.3389/fvets.2023.1069979

Integration of Epidemiological and Genomic Data to Investigate H5N1 HPAI Outbreaks in Northern Italy in 2021–2022. Pathogens 2023, 12, 100. https://doi.org/10.3390/pathogens12010100

The application of biosecurity practices for preventing Avian Influenza in North-Eastern Italy turkey farms: an analysis of the point of view and perception of farmers. Preventive Veterinary Medicine, p. 106084. Epub 2023 Dec 3. https://doi.org/10.1016/j.prevetmed.2023.106084

Epidemiology-driven approaches to surveillance in HPAI-vaccinated poultry flocks aiming to demonstrate freedom from circulating HPAIV. Biologicals, 83(July), p. 101694. https://doi.org/10.1016/j.biologicals.2023.101694

Mycoplasma bradburyae sp. nov. isolated from the trachea of sea birds. Systematic and Applied Microbiology, 46(6), 126472. https://doi.org/10.1016/j.syapm.2023.126472

Isolation and characterization of an atypical Mycoplasma gallisepticum strain showing a new mgc2 variant. Veterinary Microbiology, 282, 109768. https://doi.org/10.1016/j.vetmic.2023.109768

Development of molecular assays for the analysis of genetic relationships of Mycoplasma iowae. Veterinary Microbiology, 287, 109909. https://doi.org/10.1016/j.vetmic.2023.109909

b) International conferences:

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Zecchin B, Monne I, Pastori A, Fornasiero D, Mulatti P, Salviato A, Giussani E, Bortolami A, Terregino C, Fusaro A (2023). The changing pattern of three epidemic waves of HPAI A(H5) viruses in Italy, 2020-2023. EPIDEMICS9 28 November - 1 December 2023; Bologna, Italy

Fornasiero D., Martelli L., Scarton F., Scolamacchia F., Mazzucato M., Marchetti G., Monne I., Terregino C., Manca G., Spada A., Mulatti P. (2023). Disentangling the role of wild bird species in Avian Influenza transmission to poultry. GEOVET Silvi Marina – Teramo, Italy, 2023, 19-21 September 2023.

Mazzucato M., Roncalli G., Fornasiero D., Martelli L., Scolamacchia F., Terregino C., Manca G., Serra L., Mulatti P. (2023). Spatial dynamics of mallard ducks (Anas platyrhynchos) and their potential role in the spread of Avian Influenza in Italy. GEOVET, Silvi Marina – Teramo, Italy, 2023, 19-21 September 2023.

Ferrè N, Manca G, Mulatti P, Mazzucato M, Sbettega F, Calistri P, Conte A, Di Lorenzo A, Compton C, Subharat S, McCool MJ, Delgado A, Kondo S, Cardinale E, Apolloni A, Bouvier R, Villaudy S, Munoz Veira FM, Ricci A (2023). The model-driven approach to zone geospatial standardisation – the GeoZone project. GEOVET 2023, 19-21 September 2023, Silvi Marina – Teramo, Italy.

Scolamacchia F, Marchiori F, Capelli G, Mannelli A, Caprioli R, Cestaro F, Brichese M, Patregnani T. Connect to protect: bridging capacities between animal, human and environmental health services for highly pathogenic avian influenza in Veneto region (Italy) - ECVPH Annual Conference and AGM 20.-22. September 2023 - Berlin, Germany

Scolamacchia F, Mulatti P, Dorotea T, Fornasiero D, Terregino C, Manca G, Mannelli A. The HPAI virus introduction window into poultry holdings: the relevance for prevention and control strategies – SVEPM Annual Meeting 2023 – March 22-24 Toulouse, France

Bortolami A, Shittu I, Franzo G, Maniero S, Fortin A, Varotto M, Nwosuh C, Bakam J, Muhammad M, Panzarin V, Pastori A, Schivo A, Cecchinato M, Terregino C, Bonfante F, Monne I, Fusaro A. Newcastle Disease: do we need to revise vaccination strategies? a pilot study for vaccine strain selection based on genetic and antigenic characteristics. XXII Congress of the World Veterinary Poultry Association- 4-8 September 2023, Verona, Italy

c) National conferences:

d) Other (Provide website address or link to appropriate information):
Organization of a workshop on Avian Influenza Vaccination trials performed in Europe and the USA as a satellite event of the XXII Congress of the World Veterinary Poultry Association (WVPA) held in Verona (4-8th of September 2023) - http://www.wvpa.net/

11. What have you done in the past year to advance your area of focus, e.g. updated technology?
Started collaborations with University of Toulouse, with a PhD started at the beginning of 2024 on phyloepidemiology of Avian Influenza Viruses

Training of personnel in ecological aspects of avian influenza, and in particular on Species Distribution Modeling to define areas where specific wild birds species are more likely to be present, with the final aim to unravel the role of wild birds as potential bridge species for AI introduction into the domestic sector

12. Additional comments regarding your report: