World Organisation for Animal Health

- -

WOAH Collaborative Centre Reports Activities 2024

This report has been submitted: 28 janvier 2025 06:42

CENTRE INFORMATION

***Title of WOAH Collaborating Centre**	Wildlife Health Australia (WHA) WOAH Collaborating Centre in Wildlife Health Risk Management
***Address of WOAH Collaborating Centre**	Wildlife Health Australia, 490 Northbourne Ave, Dickson ACT 2602, Australia
***Tel:**	+61 2 9960 6333
***E-mail address:**	sunwin@wildlifehealthaustralia.com.au; Alternative: admin@wildlifehealthaustralia.com.au
Website:	https://wildlifehealthaustralia.com.au/Our-Work/International-One-Health
***Name Director of Institute (Responsible Official):**	Rupert Woods
***Name (including Title and Position) of Head of the Collaborating Centre (WOAH Contact Point):**	Steve Unwin (Program Manager, International One Health)
***Name of the writer:**	Steve Unwin

TOR 1 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
		Phase 1 of this project (2023-2024) saw content

Wildlife (true)	Creation of an Integrated Online Knowledge Hub in Wildlife Health Risk Management	collation and creation for the knowledge hub based on collaborating centre activities with partners to build capacity in wildlife health skillsets and practitioner mental resilience. Phase 2 (rollout) will be conducted through 2025 and 2026. Platform: Canvas (in partnership with the University of Minnesota), provides a 'links hub' for online training opportunities and wildlife health resources. Modules in development are a mixture of open access and participant only access sections. Content developed from partner outputs and directly via Wildlife Health Australia, includes outputs from workshops noted below in this report. Section 1. Community resilience - Components include: Exercises and discussion in trust and power sharing, The importance of mental resilience for wildlife health community sustainability, Mental health and wellbeing, A Mental Health Case Study: An Indonesian Perspective, Self-care and wildlife health community resilience, and Scientific writing and study design. Section 2. Systems thinking and a One Health toolkit for managing wildlife health risk at the human-wildlife interface - Components include: Systems thinking, An introduction to an all hazards approach to disaster management, An introduction to wildlife health risk analysis, An introduction to wildlife health surveillance in South East Asia, Wildlife Forensics, An introduction to biosecurity and biosafety for those working at the human-wildlife interface, The importance of wildlife welfare and integration of health into conservation outcomes, The role of economics in wildlife health, Communications strategies in conservation, and The problem-orientated approach and ethical decision-making. Section 3. Wildlife Health Case Studies - Components include: The Microbiome in One Health systems; Spillover and spillback: Infectious disease in a One Health system. This incorporates content on specific pathogens (E.G. SARS CoV-2, Mycobacterium tuberculosis complex, Nipah virus) and processes (E.G Increased disease risks from wildlife translocations). Section 4. Developing Communities of Practice. Part 1: Locally: Orangutan Veterinary Advisory Group Part 2:

		Regionally: Asia Pacific Wildlife Health Part 3: Globally: Wildlife Health Risk Analysis.
Wildlife (true)	Wildlife Health Australia (WHA) Australian Operations	WHA administers Australia's general wildlife health surveillance system, in partnership and coordination with 45 government and non-government surveillance partner organisations from the environment, health and agricultural sectors. This includes environment, health and biosecurity government agencies, veterinarians at sentinel zoo-based wildlife hospitals, veterinary clinics and universities, as well as wildlife rehabilitators, researchers, other wildlife health professionals and members of the public. Annually, information on 800-1000 wildlife disease events, covering over 300 species (native and feral free-ranging wildlife, captive wildlife) from across Australia is collected, analysed and reported into a national database, the electronic Wildlife Health Information System (eWHIS). The system prioritises and delivers vital wildlife health information and advice to decision-makers to support effective strategies for prevention, preparedness and response to wildlife disease and health threats. This information is provided in line with the agreed policy for data security. This aligns with our WOAH remit of managing emerging risk, by providing accurate intelligence for risk management decision-making. Selected publically available (on the WHA website) outputs of relevance to WOAH's remit for the collaborating centre (2024): 1. Surveillance reports 2. Wildlife health factsheets (N=151): In our reporting period July 2023 to June 2024, WHA reviewed 43 existing Fact Sheets and 7 new Fact Sheets were created. 3. Wildlife health incident reports. 4. Disease risk assessments and wildlife health guidelines. 5. WHA maintains dedicated HPAI H5 and HPAI H7 incident webpages where advisory material and resources are available. In 2024 the following new resources have been developed: WHA HPAI and wild animals in Australia - risk mitigation toolbox for wildlife care providers and associated Appendices WHA video: HPAI and implications for Australian wildlife.

wildlife (true)	Wildlife Disease Risk Analysis course	This online Wildlife Disease Risk Analysis (WDRA) course has been jointly delivered between the IUCN Species Survival Commission Conservation Planning Specialist Group (IUCN CPSG) and WHA Collaborating Centre since 2022. The course has relevance to all 6 WOAH wildlife health framework outputs. It is run once or twice yearly and by the end of 2024, had reached 173 participants from 56 countries, including participants from governments (n=45), non-government organisations (n=50) and academic institutions (n=26). The ongoing course aims to increase regional preparedness capacity and capability via upskilling key government and non-government actors in wildlife disease risk analysis.
Wildlife (true)	Linking Policy to Practice in the Asia Pacific 1. The Orangutan Veterinary Advisory Group workshop and webinar series: A focus on Asian Ape health.	The WHA Collaborating Centre partners with a number of NGOs to improve collaboration between wildlife health policy and practice. In July 2024 the Orangutan Veterinary Advisory Group's (OVAG) annual technical workshop was co-funded, co-convened and facilitated in partnership with The Orangutan Conservancy and the Arcus Foundation. The Collaborating Centre provided sessions on risk management utilising field-based pathology techniques. This hybrid workshop was attended by 110 people from 12 countries including practitioners, academics and wildlife managers from across southeast Asia and beyond. This workshop built on and expanded a trust-based community of practice for the region with which the Collaborating Centre can rapidly and effectively progress and deliver its objectives both within the region and internationally. This workshop allowed for 1. The linking to the Orangutan health risk analysis program with the Indonesian Ministry of Environment and Forestry. 2. The completion of a Mental Resilience and Leadership pilot program framework for wildlife health practitioners. 3. Workshop outputs have been integrated into the online knowledge hub for iterative capacity building.
		The WHA Collaborating Centre co-hosted and facilitated the Asia Pacific Wildlife Health Workshop “Collaborating against shared

Wildlife (true)	Linking Policy to Practice in the Asia Pacific 2. The Asia Pacific Wildlife Health Network and workshop	threats", with the National Institute of Wildlife Disease Control and Prevention of South Korea and the United States Geological Survey. Delegates from The South Pacific Community (SPC), the Government of the Cook Islands, and The Monitoring and Surveillance Centre for Zoonotic Diseases in Wildlife and Exotic Animals (MoZWE; Mahidol University, Thailand) were sponsored to participate by WHA.Through 2024 and 2025 this developing network is being aligned with other Policy to Practice outputs noted in this report to develop a sustainable community of practice.
		In December 2024 a Wildlife Health Risk Analysis Workshop was hosted with a purpose of aiding in the development of a sustainable cadre of professionals in the Asia-Pacific. This group should be able to manage drivers of emerging health risk by: o Confirming the role of practitioner involvement in transboundary drivers of emerging risk analyses. o Continuing to create links between policy and practice in the region in wildlife health matters. The workshop was focused on the Asia Pacific, but brought together wildlife focused health practitioners and policy informers from 4 continents representing 36 academic institutions, governments, NGO's, wildlife networks and global organisations. • Co-sponsored by WHA, IUCN Conservation Planning Specialist Group, Open Rivers Consultants and Orangutan Conservancy. • The following outputs from this workshop will become available in 2025 -2027: o Interlink several wildlife health networks to improve resource utilisation and implementation of wildlife health management through better partnerships. o Provision of transboundary case studies for the new IUCN/ WOAH Guidelines in Wildlife Disease Risk Analysis, whose remit will be expanded to incorporate all health risks in an all-hazards approach. o Provision of a curated course within the Knowledge Hub In Wildlife Health Risk Management, available to all if agreed by workshop participants, for continuing professional development of practitioners by mid 2025. o Development of a wildlife health

Wildlife (true)	Linking Policy to Practice in the Asia Pacific 3. Wildlife Health Risk Analysis: Developing a community of practice workshop	network focused on risk communication built on trust, including follow up research and capability development opportunities. Approaches: o Systems thinking for behavioural change, o All-hazard risk analysis, o Networks sustainability and resilience. Specific WOAH participants included focal points for wildlife representation from Australia, USA, Singapore, Timor Leste, Indonesia and Papua New Guinea (PNG), as well as a representative from the WOAH Sub regional representation for South East Asia, representatives from the WOAH Working Group for Wildlife, and Asia Pacific members of the WOAH Collaborating Centre Network for Wildlife Health. Representations in attendance: Global Organisations: WOAH, FAO (Asia Pacific), IUCN, Interpol, WWF International, OHHLEP. Academic Institutions: Mahidol University, UC Davis, Kings College London, CSIRO/ Australian Centre for Disease Preparedness, Macquarie University, University of Birmingham, University of Adelaide, Charles Sturt University, Queensland University of Technology. Government representation: Department of Agriculture, Fisheries and Forestry (Australia), United States Geological Survey (USA), United States Department of Agriculture (USA), Ministry of Agriculture and Fisheries (Timor Leste), Department of Environment (Indonesia), National Agriculture Quarantine and Inspection Authority (Papua New Guinea), Singapore National Parks (Singapore), Australian Centre for Disease Control (Australia), Department of the Environment, Food and Rural Affairs (UK). NGO's/ Wildlife Networks: Wildlife Health Australia, Orangutan Conservancy, Open Rivers Consulting Associates, Orangutan Veterinary Advisory Group, The Pacific Community, Wildlife Conservation Society, Asia Pacific Consortium of Veterinary Epidemiologists, International Animal Rescue, Ausvet, Sumatran Orangutan Conservation Programme. Online participants included; Wildlife Victoria, The Nature Conservancy, University of Montreal, University of Liverpool, Forestry Development Authority Liberia/the Liberian WOAH Focal Point for Wildlife.

Wildlife (true)	WOAH wildlife health network development and support.	WHA is involved in the WOAH Working Group on Wildlife (WOAH WGW), the WOAH Pacific Wildlife Health Network (WOAH PWHN), the WOAH Regional Wildlife Health Network for Asia and the Pacific (WOAH RWHN AP), and the WOAH Collaborating Centre Network on Wildlife Health. In 2024 the WHA Collaborating Centre: 1. Provided secretariat and chairing duties to the WOAH PWHN and held two virtual network meetings, the first in July on Communication of disease risk posed by wildlife and the second in November on Marine Ecosystem Health and Emerging Threats to Biodiversity. Meetings were attended by representatives from Australia, New Caledonia, New Zealand, Papua New Guinea, Tuvalu, Vanuatu, Fiji, Cook Islands, Solomon Islands, United States of America, and the Pacific Community (SPC). 2. Provided secretariat duties to the WOAH RWHN AP. Three virtual meetings were held. The first in February was the WOAH RWHN AP annual information sharing meeting in Asia and the Pacific, with follow up secretariat meetings in August and December. 3. Provided co-chair duties for the WOAH Collaborating Centre Network on Wildlife Health. The network produced a concept note for peer review publication in 2025, conducted 3 member meetings through the year (two virtual meetings developing the network's workplan, purpose and needs and a hybrid meeting to workshop the network publication and produce an iterative gap analysis of the network expertise). This network was created in 2023 and provides ongoing opportunities for WHA to meet its objectives as a collaborating center by supporting WOAH's Wildlife Health Framework globally and in the region. Through coordination and collaboration with other collaborating centres intelligence can be gathered to link policy and practice and in turn highlight the importance of wildlife health to biosecurity and biodiversity resilience. 4. Provided representation on the WOAH Working Group on Wildlife, participating in two meetings and contributing to key group outputs. In particular: 1. Collaborating with the Terrestrial Animal Health Code Commission,

		and developing a generic framework for evaluating the potential impact of wildlife diseases on trade and the economy and tested it using six diseases. 2. Contributed to technical communications material which aimed to alert, inform and support countries in facing the current situation of Highly Pathogenic Avian Influenza. 3. Contributed to the WOAH Foresight exercise and, 4. Provided strategic updates on the WOAH Wildlife Framework. 5. Provided representation during discussions on the developing partnership between WOAH and the Wildlife Disease Association, where WHA was also invited to join the WDA council in 2024.
Wildlife (true)	Supporting development of future WOAH Collaborating Centres in wildlife	Support for the expansion of the WOAH Collaborating Centre Network on Wildlife Health in the Asia Pacific will promote compatible wildlife surveillance and intelligence systems, strengthening networks and enhancing knowledge to provide network sustainability. In 2024 Collaborating Centre has partnered with the Monitoring and Surveillance Centre for Zoonotic Diseases in Wildlife and Exotic Animals (MoZWe), Mahidol University, with continued assistance in their submission of a WOAH Collaborating Centre application and to collaborate on regional wildlife health initiatives including 1. Supported and contributed to the Collaborating Centre twinning project Future Directions and Sustainability Workshop. This twinning project is between Thailand and the USA https://rr-asia.woah.org/en/projects/wildlife-health/oie-twinning-project-between-the-u-s-and-thailand/ 2. A joint technical workshop, (the second of a series of two - see 2023 report), hosted by WOAH SE Asian sub representation on operationalising the guidelines on addressing disease risks from the wildlife trade with the Thai Government (with input from other collaborating centres from the UK (Defra) and USA (USGS) and including OHHLEP representation) https://rr-asia.woah.org/en/events/woah-implementation-of-guidelines-for-addressing-disease-risks-in-wildlife-trade/. 3. Connections

		with Singapore National Parks were also expanded, who are also going through the process of becoming a collaborating centre, with several in-person scoping missions and including them in several technical outputs (see elsewhere in this report).

TOR 3: 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
Wildlife Health Risk Analysis partnership	Partnership with IUCN SSC Conservation Planning Specialist Group (CPSG) to deliver online training, content, championing and mentoring in Wildlife Health Risk Analysis processes to WOAH representatives, focal points, veterinary and other staff working with wildlife in the Asia Pacific region. Provides a systems-focused, all-hazards One Health approach to analysis of wildlife health risk	Wildlife Health and Biodiversity
Online Knowledge Hub in Wildlife Health Risk Management	The hub is a curated online toolkit for wildlife health, based on hybrid WHA Collaborating Centre partner activities. In addition to knowledge sharing, it is a forum for wildlife practitioner and policy participants to share ideas and to support each other. It is a partnership between Wildlife Health Australia, University of Minnesota and OVAG, with input via the WOAH Collaborating Centre Network in Wildlife Health, the IUCN SSC CPSG and others. It also provides training materials related to wildlife health risk management in the Asia Pacific region. It is a freely accessible platform to key participants, to aid integration of wildlife health in One Health processes more effectively. Access is currently via EOI and invitation.	Training and Education Health Management Wildlife Health and Biodiversity
	Investment in the mental health of wildlife health practioners is necessary for successful, sustainable outcomes for capacity and capability building of wildlife health policy and practice. Development of guidelines, coupled with support documentation, on wildlife health practitioner mental resilience will improve effectiveness of capacity building efforts	

- -

Guidelines on improving wildlife health practice sustainability	and staff retention in the sector. Through 2024 the WHA Collaborating Centre, with our partners, has developed a framework and iterative, audience dependant content shared via the Knowledge Hub. This was trialed through several of the workshop outputs noted in the previous section. This guidance and content is part of a multicultural, multidisciplinary toolkit, to manage the risk of expertise loss to the wildlife health sector due to poor resourcing or lack of wildlife health practice support.	Wildlife Health and Biodiversity

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

Yes

Research need 1

Please type the Research need: Regulatory alignment on wildlife health outcomes across the quadripartite is required. (Inter-quadripartite analysis research)

Relevance for WOAH Disease Control, Capacity Building, Other, Standard Setting, Animal Welfare, Facilitation of international collaboration,

Relevance for the Code or Manual Code, Manual,

Field Epidemiology and Surveillance, Diagnostics, Vaccines, Therapeutics,

Animal Category Terrestrial, Aquatic,

Disease:

Kind of disease (Zoonosis, Transboundary diseases) Zoonosis, Transboundary diseases,

If any, please specify relevance for Codes or Manual, chapter and title

(e.g. Terrestrial Manual Chapter 2.3.5 - Minimum requirements for aseptic production in vaccine manufacture)

Answer: Terrestrial and Aquatic Codes in general. Wildlife health outcomes require integration of health outputs across the quadripartite to improve health management and impact in all animals and people

Notes:

Answer: Research into understanding WOAH member values is needed to better reconcile trade and health requirements to embed wildlife health within One Health, potentially via OHHLEP, to improve global conservation outcome success (e.g world trade, pandemic prevention, Sustainable Development goals, planetary boundaries etc). For example, regulatory frameworks developed to protect animal health need to also consider conservation, sustainable use and management of biodiversity to ensure alignment with other relevant international agreements. To assist this research, the WHA Collaborating Centre has highlighted that we will concentrate on evidence gathering on wildlife health integration into One Health processes to help inform guidance. To this end, in 2024, the WHA Collaborating Centre, with partners, developed methodology for investigating wildlife health research in One Health in the Asia Pacific, to be followed up in 2025.

Research need 2

Please type the Research need: Improved resourcing of wildlife-implicated transboundary diseases of concern for public health, food security, biosecurity and biodiversity resilience, to inform and provide a more accurate picture for decision makers when standard setting and capacity building.

Relevance for WOAH Disease Control, Capacity Building, Other, Standard Setting, Animal Welfare, Facilitation of international collaboration,

Relevance for the Code or Manual Code, Manual,

Field Epidemiology and Surveillance, Diagnostics, Vaccines, Therapeutics,

Animal Category Terrestrial, Aquatic,

Disease:

Kind of disease (Zoonosis, Transboundary diseases) Zoonosis, Transboundary diseases,

If any, please specify relevance for Codes or Manual, chapter and title

(e.g. Terrestrial Manual Chapter 2.3.5 - Minimum requirements for aseptic production in vaccine manufacture)

Answer: Terrestrial code: Section 2 'Risk Analysis' and Volume 2 to include wildlife health components; Chapter 1.4 Animal health surveillance; Chapter 1.5 Surveillance for arthropod vectors of animal diseases; Chapter 4.1 Introduction to recommendations for the prevention and control of transmissible animal diseases; Chapter 4.2 General principles on identification and traceability of live animals; Chapter 6.1 Introduction to recommendations for veterinary public health. Aquatic Code Section 2 'Risk analysis'; Sections 8-11.

Notes:

Answer: In order to fully embrace and fulfil the objectives and outcomes of the WOAH Wildlife Health Framework, standard setting and capacity building need to more consistently incorporate consideration of wildlife, wildlife health and the environment to better reflect the reality of transboundary health issues. To increase the likelihood of successful implementation of WOAH's wildlife health framework, improved resourcing of wildlife-implicated transboundary diseases of concern for public health, food security, biosecurity and biodiversity resilience, is required to inform and provide a more accurate picture for decision makers when standard setting and capacity building. We can do this via an agreed risk-based approach to filling data gaps in knowledge of multi-species transboundary diseases of concern. The Wildlife Disease Risk Analysis process (see IUCN-WOAH 2014 guidelines) presents an approach to risk analysis that utilises a systems-based all-hazard approach, that can be used to identify drivers of emerging risk to wildlife health, which will assist wildlife health risk management long term. These risk analysis guidelines are being updated with WOAH and IUCN in 2025 will also provide another opportunity to explore where relevant code chapters could be revised. This would also be a useful pipeline for intelligence gathering on wildlife health, as the majority of wildlife health data generation globally is not via Government sources, to allow WOAH to be the source of truth between surveillance data generated by wildlife-focused NGO's, and what is reported via government representatives. Facilitation of international collaboration is underway: Improved co-ordination of wildlife health data gathering to aid this reconciliation between WOAH trade and health remits is already underway (see the WHW report from 2024 https://www.woah.org/app/uploads/2024/08/a-working-group-on-wildlife-report-04.24-1.pdf). WHA and our collaborating centre promoted this collaboration via integrating our capacity building efforts with wildlife health risk analysis processes. As per the Code Commission Meeting report September 2024 (https://www.woah.org/app/uploads/2024/10/a-tahsc-sept-2024.pdf), it is acknowledged that the Code Commission will continue to work to integrate wildlife into the Standards with input from the WOAH WGW (priority #2). As the Code Commission workplace progresses this activity in consultation with the WOAH WGW, there is now an opportunity to draw on the WOAH Collaborating Centre Network in Wildlife Health to support this input. The planetary boundaries model indicates that reduced genetic diversity in the planet's biome is of greater threat to our survival than climate change. The quadripartite system can be utilised to coordinate efforts between global bodies and their member to highlight the research already being collated, and commission research based on risk analysis evidence of data gaps. In 2024, WHA increased discussions with the FAO Animal Production and Health Commission in Asia and the Pacific to better align outputs for wildlife health (including building on the content generation and review work conducted in 2023 for the FAO FTP-

WEBE program).

Research need 3

Please type the Research need: Practitioner mental resilience research. This is an activity within the WHA's Collaborating Centre work plan for the Asia-Pacific.

Relevance for WOAH Disease Control, Capacity Building, Other, Standard Setting, Animal Welfare, Facilitation of international collaboration,

Relevance for the Code or Manual Code, Manual,

Field Epidemiology and Surveillance, Diagnostics, Vaccines, Therapeutics, System sustainability,

Animal Category Terrestrial, Aquatic,

Disease:

Kind of disease (Zoonosis, Transboundary diseases) Zoonosis, Transboundary diseases,

If any, please specify relevance for Codes or Manual, chapter and title

(e.g. Terrestrial Manual Chapter 2.3.5 - Minimum requirements for aseptic production in vaccine manufacture)

Answer:

Notes:

Answer: Due to globally poor resourcing, lack of effective networking between wildlife health and other One Health sectors, and overstretched expertise, we are highlighting a risk to sustainability for wildlife health capacity building without improved mental resilience training for those in the sector. Highlighting this challenge within wildlife health aligns with the systems approach extending to community resilience for pandemic prevention, preparedness, response and recovery of all health systems. Global reduction in mental health resilience following pandemics should also be acknowledged and assessed, with prioritisation of solutions, for resilient communities and health care professionals across all sectors. For example, human-wildlife conflict can impact the mental health of frontline wildlife health professionals which in turn can lead reduced workforce sustainability. In 2024, the WHA WOAH Collaborating Centre piloted several outputs in system and practitioner resilience with partners.

Research need 4

Please type the Research need: Wildlife laboratory capacity building: both bespoke and inclusive lab systems are required.

Relevance for WOAH Disease Control, Capacity Building, Other, Standard Setting, Animal Welfare, Facilitation of international collaboration,

Relevance for the Code or Manual Code, Manual,

Field Epidemiology and Surveillance, Diagnostics, Vaccines, Therapeutics,

Animal Category Terrestrial, Aquatic,

Disease:

Kind of disease (Zoonosis, Transboundary diseases) Zoonosis, Transboundary diseases,

If any, please specify relevance for Codes or Manual, chapter and title

(e.g. Terrestrial Manual Chapter 2.3.5 - Minimum requirements for aseptic production in vaccine manufacture)

Answer: Terrestrial Code Chapter 4.13 Disposal of Dead Animals and Chapter 4.19 Official control programmes for listed and emerging diseases. Manual of Diagnostic Tests and Vaccines for Terrestrial Animals Chapter 1.1.6 - Principles and Methods of Validation Diagnostic Assays for infectious Diseases and Chapter 2.1.3. Managing Bio risk: Examples of aligning risk management strategies with assessed bio risks

Notes:

Answer: Relevant code and manual sections to update to include wildlife health components, (E.G see the review of methodologies from the WOAH manual: Jia B, Colling A, Stallknecht DE, Blehert D, Bingham J, Crossley B, Eagles D, Gardner IA. 2020. Validation of laboratory tests for infectious diseases in wild mammals: review and recommendations. J Vet Diagn Invest: 32(6):776-792, to align with the WOAH Wildlife Health Framework. Practitioner evidence reports a lack of access to or capacity in laboratory diagnostics that integrate wildlife species. In particular, test validation for key wildlife species, and storage facilities for collected samples are urgently needed, to improve epidemiological assessments. A solution here could be to increase connectivity between WOAH Collaborating Centres in Wildlife Health and Collaborating Centres specialising in Laboratory Expertise. In 2024, the WOAH Collaborating Centre network in wildlife health actioned this by linking with several centre specialising in laboratory expertise. For the Asia-Pacific, WOAH Regional Representation for the Asia-Pacific Region (WOAH RRAP) surveyed Focal Points for Wildlife to better understand wildlife disease laboratory capacities in the region (https://rr-asia.woah.org/app/uploads/2024/11/Status-review-of-WL-lab-capacities-in-A-P_summary.pdf) and the collaborating centre presented on wildlife disease surveillance at the Regional Seminar for WOAH National Focal Points for Veterinary Laboratories (https://rr-asia.woah.org/app/uploads/2024/08/Lab-FP-Seminar_programme-with-presentations.pdf)

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
WOAH Regional Wildlife Health Network (RWHN) for the Asia Pacific	Asia and Pacific	Asia y el Pacífico	This network aims to provide a platform to facilitate the effective sharing of information, expertise and advocacy to promote the wildlife health agenda in the Region. WHA provides the secretariat for the network.
WOAH Pacific Wildlife Health Network (PWHN)	Pacific	Asia y el Pacífico	This network aims to support improvements to the management of wildlife health in the Pacific through information sharing, knowledge exchange, advocacy and collaborative activities. WHA provides the chair and secretariat for the network, and network administrative support.
Wildlife Health Australia (WHA)	Australia	Asia y el Pacífico	WHA manages the national surveillance program for diseases in wildlife and facilitates investigations into emerging wildlife health issues. It prioritises and delivers vital surveillance information and research to decision-makers in key state, territory and federal agencies to support effective wildlife

			strategies and preparedness for emergency disease events. This includes technical and scientific coordination for information dissemination to WOAH partners in the Asia Pacific, such as our public facing wildlife health fact sheets.
Orangutan Veterinary Advisory Group (OVAG)	Indonesia and Malaysia	Asia y el Pacífico	Providing coordination, collaboration and technical/scientific support and training for members of the OVAG and Asia Pacific wildlife practitioners and policy developers. Outputs include an annual hybrid workshop, hosted with regional collaborators, regular web-based capacity-building opportunities, and a web-based discussion forum. In addition to the annual technical workshop in 2024 an Orangutan health risk analysis was conducted in association with the Indonesian Government, brokered by the WOAH wildlife health focal point for Indonesia.
WOAH Collaborating Centre Network for Wildlife Health.	Global	África América Asia y el Pacífico Europa Oriente Medio	This new network was developed in 2023 via the WOAH Wildlife team. Comprised of WOAH Collaborating Centres for wildlife health and interested specialised centres, this Network aims to support WOAH in enhancing global wildlife health by leveraging the network's skills and expertise to address Members' needs. It is designed to be flexible and responsive. WHA's Program Manager for the International One Health Program and Head of the WOAH Collaborating Centre on Wildlife Disease Risk Management is network co-chair. In 2024, an expertise gap analysis was initiated and a peer-reviewed concept note was developed for publication: 'The WOAH Global Wildlife Health Collaborating Centre Network (WOAH-WILDNet): A Coordinated and Transformative Approach to Global Health Challenges.'
International Union Conservation Nature (IUCN) Species Survival Commission (SSC) Conservation	Global	África América Asia y el Pacífico	Joint delivery of online Wildlife Disease Risk Analysis (WDRA) course - aiming to increase regional preparedness capacity andcapability via upskilling jurisdictional WOAH wildlife focal points and key non-government actors in WDRA. The 6th course was conducted in the second semester of 2024 with 24 participants from Brazil, the Channel Islands, USA, South Africa, Indonesia, the Cayman Islands,

Planning Specialist Group (IUCN CPSG)		Europa Oriente Medio	Argentina, Costa Rica, Australia and Rwanda. Feedback on the IUCN/WOAH Manual of Procedures for Wildlife Disease Risk Analysis has been collated through the course to inform review and revision of the manual in 2025/26. Stakeholder engagement for the Manual updates was initiated in 2023.
International Union Conservation Nature (IUCN) Species Survival Commission (SSC) Wildlife Health Specialist Group (IUCN WHSG)	Global	África América Asia y el Pacífico Europa Oriente Medio	The focus of this group is on health impacts that relate to the conservation of species, some of which are negative to wildlife population persistence and a threat to endangered species. Co-chair is via WHA's chief operating officer, Australia's WOAH wildlife focal point. In 2024: 1. A small group of representatives from the IUCN WHSG and WOAH wildlife team finalised the now published WOAH General Guidelines for Surveillance of Diseases, Pathogens, and Toxic Agents in Free Ranging Wildlife. 2. Provided support for IUCN and WOAH input into the following two CITES intersessional working groups (ISG). ISG on movement of wildlife diagnostic samples and of musical instruments and ISG on reducing the risk of future zoonotic disease emergence. 3. Contributed to the development of IUCN – WOAH memorandum of understanding. 4. Finalised and published the IUCN SSC WHSG Report for 2023. 5. Facilitated speakers for the Asia-Pacific region webinar series 'How to protect wildlife from Avian flu in UNESCO World Heritage Sites, Biosphere Reserves and Ramsar Sites. Collaborating Centre staff presented at this meeting.
Developing partnerships with organisations becoming WOAH collaborating centres: Singapore National Parks and Mahidol University	Australia, Singapore, Thailand	Asia y el Pacífico	Partnering with wildlife health-focused organisations within the Asia Pacific on the road to becoming WOAH Collaborating Centres. In 2024 this included: 1. A Memorandum of Understanding with Singapore National Parks and Letter of Co-operation with Mahidol University, both outlining the nature and extent of complementary wildlife health surveillance and risk management activities. 2. Co-organising multiple capacity building outputs (see details elsewhere in this report).
			The WOAH WGW informs and advises the

WOAH Working Group on Wildlife (WGW)	Global	África América Asia y el Pacífico Europa Oriente Medio	WOAH on all health problems relating to wild animals, whether in the wild or in captivity. It has prepared recommendations and oversees numerous scientific publications on the surveillance and control of the most important specific wildlife diseases. Collaborating Centre representation on the WOAH WGW is via WHA's CEO, including participation in the WGW meeting April 2024: https://www.woah.org/app/uploads/2024/08/a-working-group-on-wildlife-report-04.24-1.pdf.
WildHealthNet Consortium SNAPP (Science for Nature and People Partnership) Working Group	Global	África América Asia y el Pacífico Europa Oriente Medio	A diverse group of experts aiming to address the gaps needed to develop sustainable wildlife health surveillance systems at a global scale. WHA is a working group member. For more information see: https://snappartnership.net/teams/whin/.

TOR 4 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
Australia's Department of Agriculture, Fisheries and Forestry (DAFF) and the Commonwealth Scientific and Industrial Research Organisation (CSIRO): Australia's National Science Agency	Australia	Asia and Pacific	1.To provide input on Scenario creation for future environmental planning via the Ag2050 report to map Australia's global and domestic planning for sustainable agriculture and food security. Work conducted in 2023, (report in 2024). https://www.csiro.au/en/workwith-us/services/consultancystrategic-adviceservices/csirofutures/agriculture-andfood/ag2050-scenariosreimagining-australianfarming-systems. 2. In 2024, WHA became part of the newly re-established National Animal Health Horizon Scanning and Foresight Network, aligning with WOAH's own use of foresight tools. https://www.agriculture.gov.au/about/news/three-chiefs-newsletter/scanning-emerging-animal-health-threats-opportunities.

Pacific Heads of Veterinary and Animal Production Services (PHOVAPS) and the Pacific Community (SPC)	Fiji	Asia and Pacific	1. Expand participation in the WOAH PWHN by Pacific Countries, Islands and Territories. Meeting: Enhancing Partnerships on Animal Health and Production in the Pacific.
Australian Centre for Disease Preparedness (ACDP).	Australia, Indonesia	Asia and Pacific	Partnership to promote integration of wildlife health into One Health activities. In 2024: 1. Enabling the collaborative project, 'Zoonotic diseases of concern in Asian Apes', between OVAG, ACDP, University of Adelaide, and the Indonesian Research and Innovation Agency – BRIN (Primate Research Centre, Bogor Agricultural University), via promoting and supporting an in-country veterinarian to lead on wildlife health research and fill vital knowledge gap in zoonotic disease understanding of diseases of concern in the region. 2. Providing intelligence on wildlife health networks in South East Asia to help facilitate wildlife health surveillance programs.
University of Minnesota	USA	Africa Americas Asia and Pacific Europe Middle East	Collaboration via a letter of agreement to produce an online Knowledge Hub as a repository of information. This will facilitate and improve access to international scientific output channels to improve Science communication in one health and wildlife health promotion.

TOR 6: EXPERT CONSULTANTS

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

Yes

Name of expert	Kind of consultancy	Subject
Fransiska Sulistyo	Facilitating and leading stakeholder engagement through a risk analysis process.	Facilitated completion of an Orangutan Health Risk Analysis Project agreement with the Indonesian Government via the Indonesian WOAH focal point for wildlife as the first stage in a regional wildlife health action plan.
Rupert Woods	Technical and strategic expertise as a member of the WOAH Working Group on Wildlife (WGW). For activities of the WGW for the designated time period, please refer to the 2024 report.	Providing strategic advice to WOAH on implementing the WOAH wildlife framework.

Keren Cox-Witton and Clare Death	Technical and strategic expertise with the Science for Nature and People Partnership (SNAPP).	Ongoing participation in the SNAPP Wildlife Health Intelligence Network which aim to address the gaps needed to develop sustainable wildlife health surveillance systems at global scale.
Simone Vitali and Claire Harrison	Technical expertise Commissioned via the WOAH WGW	Drafted the 2024 'WOAH Considerations for Emergency Vaccination of Wild Birds against HPAI'
Steve Unwin	Technical expertise provided via the WOAH RRAP	Provided a webinar on Wildlife Disease Surveillance to the Regional Seminar for WOAH National Focal Points for Veterinary Laboratories
Tiggy Grillo	Technical and Strategic expertise on behalf of WOAH.	1. Provided input into the review of WOAH's risk guidance on reducing spill back of mpox. 2. Provided input into WOAH hosted meetings on the future of WOAH's (non-listed) Wildlife Health Data Management System. 3. Finalised the WOAH/ IUCN General guidelines for surveillance of diseases, pathogens, and toxic agents in free-ranging wildlife - An overview for wildlife authorities and others working with wildlife (https://www.woah.org/app/uploads/2024/09/2024-final-guidelines-disease-pathogen-toxin-surv-wildlife-v27.06.pdf). Hosted a joint IUCN-WOAH Webinar on the guidelines, (https://www.woah.org/en/event/iucn-woah-wildlife-health-webinar/), and promoted via global forums to raise awareness across a broad range of audiences, including an IUCN webinar that attracted 283 potential end users: https://engage.iucn.org/event/general-guidelines-surveillance-diseases-pathogens-and-toxic-agents-free-ranging-wildlife. 4. Member of the CITES intersessional Working group for wildlife diagnostic samples.
Rodney Vile	Technical invitee from WOAH, supported by WHA.	January 2024: Contributed Australian expertise on wildlife management during emergencies (e.g. bushfire) to the WOAH Platform Action Plans' bridging workshop (meeting report) on Disaster Management and Risk Reduction Europe and North Africa

TOR 7: SCIENTIFIC AND TECHNICAL TRAINING

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

Yes
February 2024: Co-led the Future Directions and Sustainability Workshop for the Mahidol University (Thailand) / U.S. Geological Survey National Wildlife Health Centre Twinning Project.

February 2024: Support for two international attendees (Indonesia, Papua New Guinea) to attend the Australian Registry for Wildlife Health (ARWH) Pathology Short Course, identified via a competitive process.

February 2024: Supported Australia's contribution (via the Australian Department of Climate Change, Environment and Water) to the Fourteenth Session of the Conference of Parties to the Convention on the Conservation of Migratory Species of Wild Animals (CMS) Convention of Parties (CMS COP14) via provision of expert comment on the resolutions presented as part of Wildlife Health and Migratory Species and Avian Influenza (UNEP/CMS/COP14/Doc.30.4.3). The adopted Resolutions on Wildlife Disease (UNEP/CMS/COP14/CRP30.4.3) and Avian Influenza (Pending) recognises the need to embrace One Health and ecosystem approaches to maximize health across sectors.

March 2024: Facilitated contact between ARWH and the Orangutan Veterinary Advisory Group (OVAG) in support of the 2024 ARWH Facility of Veterinary Medicine FVM Universitas Brawijaya Indonesia Wildlife Pathology Short Course (see Universitas Brawijaya news).

March 2024. Provided advice to a WOAH member in the Pacific relating to Avian Influenza.

April 2024: Enabled the collaborative project, 'Zoonotic diseases of concern in Asian Apes', between OVAG, ACDP, University of Adelaide, Indonesian Research and Innovation Agency (BRIN), via promoting and supporting an in-country veterinarian to lead on wildlife health research and fill vital knowledge gap in zoonotic disease understanding of diseases of concern in the region.

April 2024: Link Policy with Practice by beginning an Orangutan Health Risk Analysis project between OVAG and the Indonesian Ministry of Environment and Forestry as a case study for the region.

April 2024: Provided an overview of the Australia National Wildlife Health System to a delegation from the UK visiting Australia.

April 2024: WHA provided advice to a WOAH member in East Asia relating to Avian Influenza Surveillance.

June 2024: The capacity building collaboration between WHA, WOAH, the Orangutan Veterinary Advisory Group and the IUCN Conservation Planning Specialist Group (CPSG) was promoted via a joint poster at the Global Health Security Congress.

June 2024: WHA provided advice to a WOAH member in East Asia on Australia's wildlife health information system (eWHIS).

June 2024: WHA facilitated provision of advice to several WOAH members in the Asia Pacific region relating to Avian Influenza.

July 2024: Formation of an editorial board with representatives from WHA, IUCN CPSG and WOAH, to review and revise the IUCN/WOAH Wildlife Disease Risk Analysis (WDRA) Manual in collaboration with key experts and practitioners from across the globe. Completion is expected by December 2025. This collaboration has been promoted at the World One Health Congress in 2024.

August 2024: Facilitation of the co-hosted Asia Pacific Wildlife Health Workshop, entitled "Collaborating against shared threats" (see below). Delegates from The South Pacific Community (SPC), the Government of the Cook Islands, and The Monitoring and Surveillance Centre for Zoonotic Diseases in Wildlife and Exotic Animals (MoZWE; Mahidol University, Thailand) were sponsored to participate by WHA.

August 2024 - October 2024: Increasing regional and global preparedness capacity and capability via upskilling key government and non-government actors in wildlife disease risk analysis. The next Wildlife Disease Risk Analysis course (WDRA) is running from August to October 2025. https://www.cpsg.org/our-work/capacity-building/courses/wildlife-disease-risk-analysis.

December 2024: Supported 2 international attendees to the Wildlife Disease Association (Fiji and Papua New Guinea).

Throughout 2024:
Hosted three cross-sectoral governmental (agriculture and environment) wildlife avian influenza vaccination meetings between the United States, New Zealand and Australia.

WHA responded to three separate WOAH member queries relating to the management of wildlife health data ,avian influenza surveillance and wildlife quarantine requirements in Australia.

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 : 0

b) Seminars : 468

c) Hands-on training courses: 94

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	Presented on the WOAH Collaborating Centre and WHA surveillance activities at the Regional Seminar for WOAH National Focal Points for Veterinary Laboratories. https://rr-asia.woah.org/en/events/regional-seminar-for-woah-national-focal-points-for-veterinary-laboratories/	The event was joined by NFPs or their representatives from 28 Members, resource persons from different sub-regions, JICA staff and trainees, representatives from the government of Japan, and WOAH staff and interns.	65
C	Wildlife Disease Risk Analysis Course https://www.cpsg.org/our-work/capacity-building/courses/wildlife-disease-risk-analysis	Global	24
B	Co-organised a webinar entitled “Communication of Disease Risk Posed by Wildlife” for WOAH Pacific Wildlife Health Network (WOAH PWHN) https://rr-asia.woah.org/en/events/communication-of-disease-risk-posed-by-wildlife/	Australia, New Zealand, Fiji, Cook Islands, New Caledonia, Solomon Islands, Tuvalu, SPC and WOAH.	20
B	Presented on Australia wildlife preparedness at a UNESCO World Heritage Convention on avian influenza webinar series “How to protect wildlife from avian	Global	100

	flu in UNESCO World Heritage sites, Biosphere Reserves and Ramsar sites" https://whc.unesco.org/en/avian-flu		
C	Hosted a workshop on Wildlife Health Risk Analysis *see elsewhere in report for details)	Global	70
B	Co-organised a webinar on General Guidelines for Surveillance of Diseases, Pathogens and Toxic Agents in Free Ranging Wildlife	Global	283

TOR 8: 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?

Yes

National/International	Title of event	Co-organiser	Date	Location	No. Participants
Internationally	Future Directions and Sustainability Workshop. https://vs.mahidol.ac.th/thailand-nwhc/en/09-future-directions-and-sustainability-workshop-en/	Mahidol University, USGS	2024-01-28	Bangkok, Thailand	40
Internationally	WOAH Pilot Implementation of Guidelines for Addressing Disease Risks in Wildlife Trade: Workshop on Assessing and Managing Health Risks in Wildlife Trade https://rr-asia.woah.org/en/events/woah-implementation-of-guidelines-for-addressing-disease-risks-in-wildlife-trade/	WOAH SRR SEA, Mahidol University, USGS,Thailand's Department of National Parks, Wildlife and Plant Conservation, Australia's Department of Agriculture, Fisheries and Forestry	2024-03-26	Bangkok, Thailand	60
Internationally	OVAG Annual Workshop https://orangutan.com/project/ovag-2024/	Orangutan Veterinary Advisory Group (OVAG)	2024-07-20	Jogjakarta, Indonesia	110
Internationally	Asia Pacific Wildlife Health Workshop:	Korea National Institute for Wildlife Disease Control and Prevention (NIWDCP), and the	2024-08-05	Hawai'i, USA	52

	Collaborating Against Shared Threats.	United States Geological Survey (USGS).			
Internationally	WHA Wildlife Health Risk Analysis Workshop	IUCN CPSG (OVAG)	2024-12-08	Sydney, Australia	70

TOR 9: 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:

8

Cox-Witton, K., Death, C., Joly, D.O., Brown, K., Gardner, E.G., Suwanpakdee, S., Bett, B., Pepin, K.M., Yellowbird, K., Saulo, D. and Morgan, O., 2024. Theory of Change for Building Stronger Wildlife Health Surveillance Systems Globally.

McIntyre, K. M., Thomson, D. J., Travis, D., Boriani, E., Fonseca, A. G., & Unwin, S. (2024). Doing One Health! Using Participatory and Systems-Thinking Steps to Develop and Implement a One Health Intervention. In Principles of One Health for a better planet (pp. 251-275). GB: CABI.

McKimmie, M et al., (2024). Collaborative wildlife disease outbreak investigation and response at Bells Swamp Victoria, Febuary 2023. Australian Veterinary Journal. https://doi.org/10.1111/avj.13364

Wille et al., (2024) Incursion of novel Eurasian low pathogenicity avian influenza H5 virus, Australia, 2023. Emerg Infect Dis, 30(12). https://doi.org/10.3201/eid3012.240919

Wille et al., (2024) Contrasting dynamics of two incursions of low pathogenicity avian influenza virus into Australia. Virus Evolution, veae076. https://doi.org/10.1093/ve/veae076

Wille et al., (2024) Long-Distance Avian Migrants Fail to Bring 2.3.4.4b HPAI H5N1 into Australia for a Second Year in a Row. Influenza and Other Respiratory Viruses, 18(4). doi: 10.1111/irv.13281

Australian Institute for Disaster Resilience (2024)
Planning for animals East Melbourne, Australia. ISBN: 978-0-6457560-6-7

Arcus Foundation (Ed.). (2024). Disease, Health and Ape Conservation (Vol. 5). Cambridge University Press.
Finalisation of the publication entitled "State of the Apes Volume V: Disease Health and Conservation" (open access online link //www.stateoftheapes.com/volume-5-disease-health-and-ape-conservation/). WHA contributed editorial support and content, highlighting an understudied area of wildlife health regionally with confirmed pandemic risk.

b) International conferences:

9

February 2024: Australian Registry of Wildlife Health Pathology Short Course

April 2024: 39th World Veterinary Association Conference.

June 2024: Global Health Security Congress

September 2024: World One Health Congress

October 2024: IUCN Conservation Planning Specialist Group Congress

November 2024: Global Burden of Animal Diseases Workshop

November 2024: International Symposium of Veterinary Epidemiologists and Economists

December 2024: Wildlife Disease Association Annual Conference

December 2024: Wildlife Health Risk Analysis Workshop.

c) National conferences:
10
March 2024: NSW Koala Summit

April 2024: 21st Australasian Bat Society Meeting

May 2024: Australasian Veterinary Poultry Association Annual General Meeting

May 2024: Australian Veterinary Association Conference

May 2024: National Aboriginal and Torres Strait Islander Environmental Health Conference

June 2024 Communicable Disease and Immunisation Conference

July 2024: 19th Australasian Vertebrate Pest Conference

July 2024: Zoonoses Special Interest Group of the Australian Society for Infectious Disease Conference

November 2024: Tasmanian and Antarctic One Health conference

December 2024: Hendra at 30 conference

d) Other (Provide website address or link to appropriate information):
3
1. Input into the GPMB 2024 Pandemic Risk Report Technical Environmental Risk Consultation: https://www.gpmb.org/reports/m/item/gpmb-monitoring-framework-full via the 2024 report: https://www.gpmb.org/reports/m/item/the-changing-face-of-pandemic-risk-2024-report#:~:text=The%202024%20GPMB%20report%2C%20The,roadmap%20for%20strengthening%20our%20defences

2. WOAH Guidelines on Addressing Disease Risk in the Wildlife Trade
World Organisation for Animal Health (2024). Guidelines for Addressing Disease Risks in Wildlife Trade. Paris, 93 pp. https://doi.org/10.20506/woah.3368. Licence: CC BY-SA 3.0 IGO.https://www.woah.org/app/uploads/2024/05/wildlife-trade-guidelines.pdf

3. WOAH and IUCN General guidelines for surveillance of diseases, pathogens and toxic agents in free-ranging wildlife: An overview for

wildlife authorities and others working with wildlife
World Organisation for Animal Health & IUCN (2024). General guidelines for surveillance of diseases, pathogens and toxic agents in free-ranging wildlife: An overview for wildlife authorities and others working with wildlife. Paris, Gland, 56 pp. https://doi.org/10.20506/woah.3509. Licence: CC BY-SA 3.0 IGO. https://www.woah.org/app/uploads/2024/09/2024-final-guidelines-disease-pathogen-toxin-surv-wildlife-v27.06.pdf

11. What have you done in the past year to advance your area of focus, e.g. updated technology?
Using machine learning tools to create a systematic review to appraise evidence for the successful integration of wildlife health into One Health decision-making.

2024: Methodology developed, aligning with the following objective and research questions:
The aim of this work is to collate existing published literature describing where wildlife health has been successfully integrated, during the framing of the problem, into assessment of a problem needing a One Health solution to create healthy environment systems, and also where it has been integrated into the development of One Health intervention(s) used to mitigate the problem.

The proposed primary research question is:
- *What methods and processes including metrics have been successfully used to assess wildlife health within development of One Health solutions to create healthy environment systems in the Asia-Pacific region?*

The proposed secondary research questions are:
- *Have these identified methods, processes and metrics been used within assessment of the problem during the problem framing stage?*

- *Have these methods, processes and metrics been used within monitoring and evaluation of the developed intervention(s) to create healthy environment systems and if not, why not?*

- *Are there identifiable patterns in the use of different methods, processes and metrics and whether they have been successfully used to appraise evidence of wildlife health?*

2025: To publish the methodology and pilot it in the Asia Pacific to enhance risk analysis and general wildlife health outcomes.

12. Additional comments regarding your report: