

Report of the WOA Working Group on Wildlife

Original: English (EN)

14 – 17 June 2022
Paris, France



1. Summary

The Working Group on Wildlife (the 'Working Group') met, from 14 to 17 June 2022, at the World Organisation for Animal Health (WOAH) Headquarters in Paris, France and was chaired by Dr William Karesh.

The Working Group addressed its role in supporting the WOAH Wildlife Health Framework, wildlife disease reporting, WOAH wildlife partnerships (including with the Wildlife Disease Association and International Whaling Commission), the facilitation of sample shipment (in the context of CITES), strengthening WOAH wildlife networks, and several specific disease topics.

To support WOAH's core mission of transparency, the Working Group was advised on how the Epidemic Intelligence from Open Sources (EIOS) system could be used to follow disease events in wildlife and was updated on the "Quick Win Project" (the Quick Win Project allows Members to continue to report diseases in wildlife to the WOAH, whilst WOAH reviews and considers a long term strategy for wildlife disease reporting). The Working Group advanced a draft paper on possible mechanisms to support Members to manage events affecting wildlife.

The Working Group made suggestions on the format and agenda for the WOAH Session at the Wildlife Disease Association Conference (July 2022 in USA) and made recommendations for a future collaboration between WOAH and WDA. The Working Group discussed options and potential benefits of WOAH organizing a side event during CITES CoP-19 meeting to brief delegates of parties on the need to facilitate the rapid international movement of diagnostic specimens and suggested some way to forward on this issue.

WOAH has recruited a Wildlife Network Coordinator and the Working Group discussed and suggested recommendations for setting up a network of Collaborating Centres working on wildlife and for strengthening the existing network of WOAH National Focal Points for Wildlife.

The Working Group was updated on the Wildlife Health framework and made recommendations for its implementation. The Working Group agreed to be involved and provide strategic vision of the Wildlife Health Framework, including a range of activities falling under different WOAH departments.

Finally, the Working Group addressed three additional topics: monkeypox, Multi-party Trust Fund for biodiversity and health and avian influenza.

2. Opening

The meeting of the WOAH Working Group on Wildlife (the Working Group) was held from 14 to 17 June 2022 at the WOAH Headquarters in Paris, France and was chaired by Dr William Karesh.

Dr Monique Eloit, Director General of WOAH, welcomed the members and thanked them for their contribution to advancing WOAH's wildlife health and One Health programmes, including by rallying support from WOAH Members and international partners. She highlighted the strategic importance of pandemic preparedness. She clarified that, since WOAH's wildlife programme and wildlife team had grown, she was looking to the Working Group for guidance on strategic direction for the future.

3. Adoption of agenda and designation of the rapporteur

Dr Marcela Uhart was appointed as rapporteur for the meeting. The agenda and the list of participants are provided in Annexes I and II, respectively.

4. Feedback from the meetings of the Scientific Commission for Animal Diseases, Terrestrial Animal Health Standard Commission and relevant *ad hoc* Groups

The Scientific Commission for Animal Diseases (SCAD) had been unable to complete review of the statement on the vaccination of wild animals of high conservation value and would consider at its next meeting.

4.1 WOAH *ad hoc* Group on reducing the risk of disease spillover events at markets selling wildlife and along the wildlife supply chain

Dr Tiggy Grillo updated the Working Group on the work of the *ad hoc* Group on reducing the risk of disease spillover events at markets selling wildlife and along the wildlife supply chain. She summarized the latest two meetings of the Group (December 2021 and January 2022) and presented the draft Guidelines and best practices to mitigate the risks of disease spillover events at markets selling wildlife and along the wildlife supply chain. The Working Group commented on these draft Guidelines. She mentioned that the aim was to finalise the Guidelines by September 2022 and to have them available by the end of the year.

The reports of the two virtual meetings of the Group, held in December 2021 and January 2022, were endorsed and are attached as Annexes III and IV.

5. Disease intelligence

Dr Paolo Tizzani represented the WOAH World Animal Health Information and Analysis Department (WAHIAD) and Dr Grillo represented the WOAH Preparedness and Resilience Department.

5.1. Epidemic Intelligence from Open Sources system

Dr Tizzani presented on how the Epidemic Intelligence from Open Sources (EIOS) system could be used to follow disease events in wildlife (unusual morbidity / mortality and including non-OIE listed diseases). Dr Tizzani planned to set up a mechanism which would provide and disseminate, to a list of subscribers, a monthly report of compiled global information on unusual morbidity or mortality events in wildlife. This mechanism would be in place by September 2022. The next steps would be to improve the EIOS system's capacity to detect unusual events and emerging diseases in wildlife, to further define the relevant data sources, and identify additional languages to be covered in the searches.

Proposed actions:

- The Working Group would be asked for input on the next steps, in particular on the data sources to be included and suggestions on the search categories / keywords.
- WOAH will create a team for the WG in EIOS and would provide specific training on the use of the system.

5.2. Update on Quick Win Project for Wildlife Disease Reporting

Dr Grillo updated the Working Group on the Quick Win Project. She presented a paper developed, in the framework of this project, for the information of the WOAH Focal Points for Wildlife and explaining why to report, where to report, what to report and how to report. She also presented the working plan of this project that includes as next steps, the testing phase (internal and external), the training phase (internal and external), the validation of the data visualisation, the notification procedure and eventually the launch of this initiative.

Proposed actions:

- The Working Group made comments on the project and volunteered to assist with training the WOAH National Focal Points for Wildlife on this project.

6. WOAH session at the Wildlife Disease Association (WDA) Conference (July 2022)

The Working Group was updated on the provisional conference programme, including the WOAH Session and the business meeting between WDA representatives and WOAH representatives. The Working Group made comments and the provisional agenda of both the WOAH Session and the business meeting were finalized.

Proposed actions:

- The Working Group recommended a collaborative agreement between WOA and WDA, identifying concrete actions.

7. WOA Wildlife Health Framework's implementation update

Updates on the Wildlife Health Framework were provided.

Proposed actions:

- The Working Group recommended to align its working plan with the WOA's Wildlife Health Framework and to advise on and review the activities of the Wildlife Health Framework. This would include:
 - Structuring discussions and agenda items for future Working Group meetings around the framework to ensure the Working Group's efforts were contributing to the goals and activities identified in the Framework.
 - Support continued refinements and updates to the Framework, and assisting in further development of plans, deliverables, monitoring and evaluation, keeping in mind the need for consideration of desired outcomes before activities are initiated. The Working Group proposed to figure out for each activity of the Wildlife Health Framework what are the outcomes that WOA wants to achieve. This would help to better complement these activities and also to assess their success and advancement.

8. Mechanisms to support Members to manage events affecting wildlife

A draft paper on a possible internal Standard Operating Procedure (SOP) for WOA to reply to requests from Member Countries in case of a mortality event in wildlife was presented to the Working Group.

The Working Group made the following comments:

- The events considered should be morbidity or mortality events in wildlife;
- There was a need to develop criteria to analyse the request and to have based on these criteria a screen of the requests to determine if the request is relevant for this procedure;
- Request should come from the Delegate or the WOA National Focal Point for wildlife;
- The involvement of the WOA Collaborating Centre network on Wildlife when operational;
- The prerequisites to this procedure should be the development of a network at the national level including environmental and wildlife authorities by the National Focal Point for wildlife, a communication campaign on the fact that investigations on wildlife diseases is important and economically sustainable, and the availability of funds to allow the low- and middle-income countries to initiate a wildlife disease surveillance system.

Recommendations:

- The Working Group suggested to advance on the draft paper based on these comments.

9. Facilitate the transport of wildlife diagnostic specimens

Dr David Morgan, Chief of the Science Unit at the CITES Secretariat, updated the Working Group on the Decision SC74 Doc. 44 on the Simplified procedures for permits and certificates adopted by the Standing Committee at its last meeting in March 2022, in Lyon, France. The Working Group pointed out that, currently,

the process to send a specimen from a CITES Appendix I or II animal species for diagnostic purposes, to a veterinary laboratory in a foreign country, requires export and import, or export only CITES permits, respectively. The permit process, developed to protect wildlife from over-consumption in commercial trade, can have unintended consequences, of extending the time to obtain a diagnosis and thus compromising the early measures to be taken to protect the health of these and other species. The Working Group therefore welcomed this Decision adopted by the CITES Standing Committee and would support its adoption by the CITES parties at the next COP-19 that would be held in Panama in November 2022. The Working Group however recognizes that this is the first step towards establishing a CITES working group to further advance resolution of this matter and looks forward to continuing working with CITES Secretariat.

The Working Group discussed options and potential benefits of WOAHA organizing a side event during COP-19 meeting to brief delegates of parties on the need to facilitate the rapid international movement of diagnostic specimens.

Proposed actions:

- The Working Group identified the importance of support and advocacy from national Public and Animal Health authorities to their National CITES Representatives to highlight the importance of rapid international movement of diagnostic specimens and the need for modification of current CITES procedures to reduce delays in access to diagnostic services.
- The Working Group recommended the development of educational material explaining the importance of a fast shipment of diagnostic specimens.
- The Working Group agreed to draft an information document on the importance to have a rapid transport of animal diagnostic specimens for consideration of the CITES Parties at the COP-19.

10. Network of Collaborating Centres working on wildlife

The members of the Working Group reviewed the concept paper on the network of Collaborating Centres on wildlife. They mentioned that the number of Collaborating Centres involved in the network will depend on the objectives of the network. However, they highlighted that it would be better to start with a small number at the beginning and to expand afterwards when the network would be active. This would facilitate motivation of key and engaged Collaborating Centres.

They made comments on the Terms of reference of the Collaborating centres, highlighting that in the development of a network some terms of reference were missing, in particular to facilitate and assist with investigations of outbreak in wild animals. The Collaborating Centres are very productive in capacity building: Training, development of Guidelines, scientific expertise. The network should focus on these activities.

They proposed that the Wildlife Network Coordinator report directly and regularly (at each meeting of the Working Group) on the advancement on the network of Collaborating Centres. They also proposed that the Focal Points for Wildlife be informed on this network of Collaborating Centres for Wildlife.

11. Capacity Building tools

Barbara Alessandrini introduced the role of the PVS Pathway programme in support of the implementation of the WOAHA Wildlife Health Framework. She described the preliminary results of a review on "Wildlife health and related environmental factors in PVS". The analysis was focusing on PVS evaluation and follow up missions, gap analysis, and sustainable laboratory missions, with the aim to identify how, when, and why wildlife health is – or is not – taken in consideration by the tools themselves and by Veterinary Services. A review of the existing international assessment tools was also carried out, to understand if any of them could be used to fill in the identified gaps. The findings would inform the recommendations and support the proposal of new or modified tools to improve the PVS Pathway, both in aquatic and terrestrial animals, to better integrate wildlife health into its core structure and activities in line with the WOAHA Wildlife Health Framework.

Dr David Sherman presented the current comprehensive review and analysis of legislation related to wildlife health and surveillance systems and the role or mandate of the Veterinary Services in addressing wildlife health issues and risks of pathogens emergence at the animal-human-ecosystem interface. The aim of this work was to identify gaps and needs and provide specific recommendations and/or tools to better consider wildlife health and related environmental factors in the WOAHS Standards on legislation, with the broader goal of supporting safe wildlife trade, sustainable use of wildlife and wildlife surveillance.

Dr Nadège Leboucq presented the WOAHS Competency-based Training Framework and informed the Working Group on the development of a Competency Package on Wildlife. She also announced the recent launch of a call for tender to develop eModules and other training services on wildlife surveillance and trade. The ongoing establishment of the network of WOAHS Collaborating Centers for Wildlife health and biodiversity (Focus Area 6 of the classification of the Collaborating Centres by topic) would greatly assist WOAHS Capacity Building Department in all its future training activities on wildlife.

Proposed action:

- The members of the Working Group agreed to be involved in the validation of the content of the e-modules that would be developed for wildlife and in testing of these modules.
- The Working Group would review the draft reports of the three reviews related to wildlife (PVS tools, Legislation and Standards).
- The members of the Working Group would spread, among their network, the call for tender for the development of the e-modules on wildlife.

12. WOAHS National Focal Points for Wildlife Network

The Working Group made comments on the provisional agenda of the 6th Cycle Training Seminar for the WOAHS national Focal Points for Wildlife that would be organised in Africa in 2022/2023. The main comment was that the Training Seminar should focus mainly on wildlife disease management and to leave the traditional presentations on the WOAHS activities on wildlife and the wildlife disease reporting to an online learning available in advance of the presential Training Seminar.

The updated version of the Terms of Reference for the WOAHS National Focal Points for Wildlife was presented to the Working Group as the final version of the outcomes of the report of the survey sent to the WOAHS National Focal Points for Wildlife in September 2021.

Proposed actions:

- The Working Group would comment the last updated version of the WOAHS National Focal Points for Wildlife Terms of Reference for finalisation at its next meeting.
- The Working Group to highlight the main outcomes of the survey to be included in the conclusion of the report. The report would be finalised at the next meeting of the Working Group.

13. Wild Aquatic Animal health

13.1. News about PVS-Aquatic Animals

Dr Valentyna Sharandak presented the second edition of the PVS Tool for the Evaluation of Performance of Aquatic Animal Health Services (Aquatic PVS tool), published in 2021, including the four fundamental components and 47 Critical Competencies. She mentioned the resulting new and amended texts in the Aquatic Animal Health Code (Aquatic Code): Glossary; Diseases listed by the WOAHS (Chapter 1.3.); Biosecurity for aquaculture establishments (New Chapter 4.1.); Specific chapters on diseases of fish and molluscs, and highlighted the definition of Aquatic Animals in the Glossary (that includes wild animals).

Proposed action:

- The members of the Working Group agreed to review the Sources of verification for all Critical Competencies of the PVS Aquatic Tool, where wild animals are concerned, and complement, when relevant.

13.2. News from the Aquatic Animal Health Standards Commission

Dr Stian Johnsen provided information for the Working Group to have a better understanding on how wild aquatic animals and aquatic animal diseases are handled by the Aquatic Animals Commission and to facilitate the exchange of information between the Working Group and the Commission. He presented how WOAHA implements the Aquatic Animal Health Strategy to improve the aquatic animal health and welfare globally, and how wild aquatic animals and aquatic animal diseases are included in the activities. Finally, Dr Johnsen shared information on Commission activities of specific interest to the Working Group, i.e., the listing of infection with tilapia lake virus and the revision of Chapter 1.4. Aquatic animal health surveillance, recently adopted at the 89th General Session in May 2022.

Proposed action:

- The Working Group agreed to collaborate with the Aquatic Animals Health Commission to initiate foresight studies on the effect of climate changes on the health of wild and farmed aquatic animals.
- The Working Group would welcome a new member with a background on wild aquatic animals not addressed by the Aquatic Animal Health Standards Commission (coral and invertebrates)

13.3. Aquatic Mammals, in general - International Whaling Commission

Dr Uhart presented the International Whaling Commission (IWC) to the Working Group. She mentioned that the work of the Commission was divided across six committees which in turn were comprised of a series of sub-groups. The most relevant Committee for WOAHA was the Scientific Committee. Within this Committee, there were several sub-groups, including one on Environmental Concerns, which had a working group on diseases of concern.

Proposed action:

- Include the WOAHA Collaborating Centre on Aquatic mammals Health in the future network of Collaborating Centres on Wildlife Health.
- Approach the scientific Commission of IWC to see possible future interactions between WOAHA and IWC.

14. Any other business

14.1. Monkeypox

The Working Group expressed concerns on the current definition of Emerging Diseases in the Glossary of the WOAHA Terrestrial Animal Health Code in the context of Monkeypox and recommended WOAHA to reconsider the current definition so as to better allow WOAHA to contribute information to the global health community on the occurrence of pathogens in wildlife.

14.2. Multi-party Trust Fund for biodiversity and health

The Working Group discussed the recently established Multi-party Trust Fund for biodiversity and health, of which WOAHA is a consortium partner. Members of the Working Group presented ideas for WOAHA's engagement and agreed to assist in discussing the opportunities for project development with eligible countries and partners.

14.3. Avian Influenza

The Working Group discussed the geographic expansion of avian influenza morbidity and mortality events in wild birds and noted the adverse effects seen this year in threatened and endangered species such as penguins and other seabirds.

- The Group recommends developing informational material about avian influenza, situational awareness, surveillance and response, steps in notification, etc. in collaboration with other interested parties such as the Agreement on the Conservation of Albatrosses and Petrels (ACAP), the IUCN, and the World Seabird Union to be shared with their constituents as well as WOAH members.

15. Date of next meeting

The Working Group proposed the following dates for its next meeting from Tuesday 13 to Friday 16 December 2022.

16. Adoption of the report

The report was adopted by the Working Group.

Annex I.

Agenda

MEETING OF THE WOAHP WORKING GROUP ON WILDLIFE

Paris (France), 14 – 17 June 2022

1. **Summary**
 2. **Opening**
 3. **Adoption of agenda and designation of the rapporteur**
 4. **Feedback from the meetings of the Scientific Commission for Animal Diseases, Terrestrial Animal Health Standard Commission and relevant ad hoc Groups**
 - 4.1. Ad hoc Group on reducing the risk of disease spillover events at markets selling wildlife and along the wildlife supply chain
 5. **Disease Intelligence**
 - 5.1. Present new categories/algorithms implemented in the Epidemic Intelligence from Open Sources (EIOS) system to follow disease events in wildlife
 - 5.2. Update on Quickwin
 6. **WOAH workshop at the Wildlife Disease Association Conference (July 2022)**
 7. **WOAH Wildlife Health Framework**
 8. **Mechanisms to support Members to manage events affecting wildlife**
 9. **Facilitate the transport of wildlife diagnostic specimens**
 10. **Network of Collaborating Centres working on wildlife**
 11. **Capacity Building tools (Terrestrial Animal + Legislation)**
 12. **WOAH National Focal Points for Wildlife Network**
 13. **Wild Aquatic Animal Health**
 14. **Any other business**
 15. **Date of next meeting**
 16. **Adoption of the report**
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Annex II.

List of Participants

MEETING OF THE WOAHP WORKING GROUP ON WILDLIFE

Paris (France), 14 – 17 June 2022

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Annex III.

REPORT OF THE MEETING OF THE WOA *AD HOC* GROUP ON REDUCING THE RISK OF DISEASE SPILLOVER EVENTS AT MARKETS SELLING WILDLIFE AND ALONG THE WILDLIFE SUPPLY CHAIN (Virtual meeting, December 2021)

1. Opening of the meeting and purpose of the meeting

The WOA *ad hoc* Group on reducing the risk of disease spillover events at markets selling wildlife and along the wildlife supply chain, met virtually for the fourth time on 20 December 2021, hosted by WOA headquarters based in Paris. The Group's first meeting was held in June, the second in September and third in November 2021.

Dr William Karesh, Chair of the Group, welcomed the participants.

Dr Karesh highlighted that the purpose of this fourth meeting was to further progress the work of the Group, discuss the potential for a key user group for pre-release revision of the guidelines, and the timelines for outputs.

2. Designation of rapporteur

The meeting was chaired by Dr William Karesh and Dr Marcela Uhart acted as rapporteur.

3. Adoption of the agenda

The Group adopted the Agenda. The Agenda and List of Participants are presented in Appendices I and II of this report, respectively.

4. Sub-working groups updates and discussion

The Group worked through the table of contents. Progress, content and approach for each section were discussed. Overarching themes of discussion are captured below with detailed additions and considerations for each section provided in the table of contents in Appendix III.

The Group identified a need to include a summary infographic to show how the sections within the guidelines inter-link with and inform the other sections. It was mentioned that the 3 or 5 part 'Design, implement – Evaluate' policy cycle may provide a useful template (e.g., this 5 part policy cycle example: <http://www.tasc.ie/assets/img/2015/05/201505271634001.png>). In addition, it was noted that users (of the guidelines) will need to establish what their policy goals are from the start as this will inform implementation of the guidelines in each particular case. This will need to be articulated at the outset of the guidelines.

The Group noted the need for each section to be written with consideration that the risks may be to humans, wildlife and/or domestic animals; the aim will be to ensure the guidance is applicable to all three.

In addition, each section will need to be framed with the following in mind: "Who" may be implementing the guidance (within country actors, or international actors, or both) and "Where" they are being implemented (e.g., within a country or across borders). This could be provided with an infographic or similar visual cue (e.g. Text box).

A list of potential subject matter expert groups or stakeholder groups that can be consulted, as appropriate and needed, can also be provided in each section (e.g. Text box: IUCN WHSG, WDA, etc)

The inclusion of two or more tangible and contrasting examples were also identified by the group as a practical aspect in each section to assist users. Recent presentations at this forum were provided as one source of examples: <https://www.biodiversity.be/4859/> .

The Group also discussed whether there was a strategy to capture learnings from implementation of the guidelines by countries – capturing what works or does not in specific contexts. Capturing these learnings will be critical to the feedback loop, identifying which techniques / approaches work and in which situations and when they may not. Options noted included: *Panorama Solutions*, which present solutions enacted by government and NGOs and the *WOAH Observatory*, set up to monitor how WOA members implement WOA standards, identify the roadblocks and how to remove the roadblocks

5. Key user groups

A user group - made up of representative end users drawn from WOA members and other key stakeholder groups, such as IUCN specialist groups or CITES - would be a useful way to review, revise and finalise the guidelines to ensure they are fit for purpose. Ideally drawing on users who have not had much to do with wildlife trade that may need to start up something. Identification of participants and how many participants is to be progressed.

The Group also suggested that the guidelines could be reviewed by a subject matter expert group.

6. Programme for further work after this meeting

The Group will meet again for its fifth meeting at the end of January 2022. Drafts of each section will be finalised ~10 days prior to the meeting to allow for advance review

7. Finalisation of the report

The report was finalised and adopted by the Group at the following meeting of the Group.

Agenda

**Meeting of the WOAH *ad hoc* Group on
REDUCING THE RISK OF DISEASE SPILLOVER EVENTS AT MARKETS SELLING WILDLIFE
AND ALONG THE WILDLIFE SUPPLY CHAIN
(Virtual meeting, 20 December 2021)**

1. **Opening and purpose of the meeting**
 2. **Designation of rapporteur**
 3. **Adoption of the agenda**
 4. **Sub-working groups updates**
 5. **Key User Group**
 6. **Programme for further work after this meeting**
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List of Participants

**Meeting of the WOAH *ad hoc* Group on
REDUCING THE RISK OF DISEASE SPILLOVER EVENTS AT MARKETS SELLING WILDLIFE
AND ALONG THE WILDLIFE SUPPLY CHAIN
(Virtual meeting, 20 December 2021)**

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Draft Table of Contents, as of 23 December 2021
(revised following virtual meeting on 20 December 2021)
Meeting of the WOAHA *ad hoc* Group on
REDUCING THE RISK OF DISEASE SPILLOVER EVENTS AT MARKETS SELLING WILDLIFE
AND ALONG THE WILDLIFE SUPPLY CHAIN
(Virtual meeting, 20 December 2021)

Section of the Guidelines – Notes from September and November meetings	Next Steps
<p>1. Executive Summary</p> <p>Dec 2021 meeting updates:</p> <ul style="list-style-type: none"> - Summary infographic to show how the sections within the guidelines inter-link with and inform the other sections 	<i>To be considered at later stage</i>
<p>2. Scope</p> <ul style="list-style-type: none"> - Infectious pathogens at all interfaces where direct, indirect or vector-borne transmission leads to a risk of disease spillover to humans, domestic animals, or wildlife. - Wild animals and captive wild animals (zoos, pets, farms, etc) involved in wildlife trade. - Feral animals, however, were considered out of scope. - Terrestrial and aquatics - <i>Include a general statement noting the principles and techniques / tools within these guidelines could be applied / useful for settings that may not necessarily be covered in detail in this document</i> 	<i>Tweak to fit with final product</i>
<p>3. Purpose, intended goals and limitations</p> <p>Dec 2021 meeting updates:</p> <ul style="list-style-type: none"> - highlight to users (of the guidelines) of the need to establish what the policy goals are from the start. This will inform each user's process of thinking in implementing the guidelines. 	<i>Tweak to fit with final product</i>
<p>4. Introduction / Background / Scene setting</p> <ul style="list-style-type: none"> - Interconnectedness of the health of humans, domestic animals and wildlife - Animal welfare related to wildlife trade - Wildlife trade overview "... highlight the complexities of wildlife trade and supply chain, outline the similarities, differences, and interdependences with domestic animal trade, provide examples of how interventions may have upstream and downstream impacts when implemented, and also provide common language to enable promotion and engagement...." 	1-2 pager

Section of the Guidelines – Notes from September and November meetings	Next Steps
<ul style="list-style-type: none"> - Conditions for effective spillover of a pathogen from a source wildlife host to a spillover host and vice versa? - “external factors as targets for intervention / mitigation strategies.... disease prevention, wildlife health resilience, drivers for social change or more specifically frontline disease transmission risks. For example [discussion or recommendations relating to the benefits of]...disease / health intelligence systems that could drive surveillance activities, identify disease risks early and address drivers of disease spillover at its root cause (e.g., limiting system disruptions due to land-use, climate change or animal production change). ...” - FAO. 2020. The COVID-19 challenge: Zoonotic diseases and wildlife. Collaborative Partnership on Sustainable Wildlife Management’s four guiding principles to reduce risk from zoonotic diseases and build more collaborative approaches in human health and wildlife management.¹ <p>Nov 2021 meeting updates:</p> <ul style="list-style-type: none"> - Provide an overview on wildlife trade and then provide overview on elements relating to health. <p>Dec 2021 meeting updates:</p> <ul style="list-style-type: none"> - 1st paragraph in Section 6 to be moved into this section. 	
<p>5. Intended Audiences</p> <ul style="list-style-type: none"> - Key Audience: National government authorities with mandates for animal health, public health, wildlife management, wildlife trade and enforcement, and frontline personnel along the wildlife trade value chain were identified as the key target audiences for the guidelines. - Outline other audiences and outline how each audience may use / interact with the guidelines. <p>Dec 2021 meeting updates:</p> <ul style="list-style-type: none"> - Introductory paragraph placeholder completed. - A key audience = WOAH stakeholders inclusive of animal health and veterinary services - Raising awareness and use of the guidelines by additional stakeholder could be facilitated via WOAH stakeholders. - Inclusion of frontline workers was discussed. 	<p>Short para to include Scope /- introduction</p>
<p>6. Approach to risk assessment / decision framework</p> <ul style="list-style-type: none"> - Drawing on guidelines already developed in addition to specific risk frameworks developed for the wildlife trade sector (e.g. Sleeman et al (in prep), IUCN/OIE DRA, Wikramanayake et al (2021), and others) to provide an overview. 	

¹ <http://www.fao.org/3/cb1163en/CB1163EN.pdf>

Section of the Guidelines – Notes from September and November meetings	Next Steps
<ul style="list-style-type: none"> • Assessment of risk with limited information • Context of assessing risk: Risk to who: human health, domestic animal health, wildlife health; Assessing risk through multiple lens e.g. biodiversity, conservation, economic, local culture and livelihoods, agriculture, etc • Geographic differences • Species/Taxa differences • Wildlife trade / supply chain environment differences <p>Sep 2021 meeting updates:</p> <ul style="list-style-type: none"> - Outline of approach and considerations for risk assessment; decision making and tools - - FAO Animal Health Colleagues could also assist with this section (via Kristina) <p>Nov 2021 meeting updates:</p> <ul style="list-style-type: none"> - To include information on quantitative and qualitative risk assessment and considerations relating to each when applied to the pathogen risks and wildlife trade. Tripartite joint risk assessment was noted : https://www.who.int/initiatives/tripartite-zoonosis-guide/joint-risk-assessment-operational-tool - Provide context to use of the precautionary approach, the Hazard Analysis and Critical Control Points system (HACCP) , Hierarchy of Controls (Ref: CDC) and primary, secondary and tertiary levels of prevention (ref: https://www.statpearls.com/articlelibrary/viewarticle/27736/). - Many risks unknown, risk rating should be based on High / Medium / Low or Red / Orange / Yellow gradient. - Importance of including a diversity of perspective through cross-sectoral consultation was critical part of the risk assessment process. Example: Integrating gender into Illegal wildlife trade thinking and responses - Inclusion of examples to demonstrate application - This section to focus on hazard identification and assessment, and link to section 7 which will cover risk management <p>Dec 2021 meeting updates:</p> <ul style="list-style-type: none"> - Conference call held with the sub-group to inform the draft. - A decision context framed to explore three main trade-offs and the need for inclusive decision-making framework. - Diagram / examples to be included to demonstrate how to balance the trade-offs. - Note: Precautionary principle may be a better fit for the next section. 	

Section of the Guidelines – Notes from September and November meetings	Next Steps
<ul style="list-style-type: none"> - Intro to risk analysis and brief overview for each of the various papers. - Would be great to include examples of the tangible factors that could be considered during risk assessments (Host taxa, locations, market type, etc) - Useful to consider the perspective in this section and section #7 – considering “who” is managing risks “where”. <ul style="list-style-type: none"> • “within a country” will refer to assessing and managing the risks along the broad “wildlife trade” chain and will probably be highly focused on coordination between agencies (gov and NGOs) and actors within a country. • “between countries” will imply mainly government to government interactions or international organizations to define requirements for international trade or border/customs control. • These would be complementary, meaning a stronger “in country” policy and approach to assess and manage the risks will provide greater safety to potential exports. The information gathered along the chain and a set of well-documented measures implemented by a strong national system will provide the best assurances to support safe exports and will be much more effective than standalone measures applied at export. Naturally, the national measures should also include assessing and managing risks presented by imports. - Code chapters on Import Risk Analysis would be worth noting in this chapter, but more so in Section 7. 	
<p>7. Overview of risk reduction techniques and interventions</p> <ul style="list-style-type: none"> - General: Prevent, Minimize, Assess, Protect (or similar simple framework to structure options) - Options: e.g. closing or managing wildlife or wet markets, trade bans, sanitary regulations and biosecurity, improved animal health and welfare, reducing demand, culling, farming, and socioecological interventions. - IPBES, WHO-OIE-UNEP interim guidance, and Stephen 2021 report, specifically Table 3.1 and 3.2. - Application of existing trade and sanitary standards - Use the generic supply chain infographic as the basis, set out a series of sections which address the following elements against the infographic. Generic Wildlife Trade Supply Chain: free-ranging wildlife, harvest/capture/hunt, local (incl. farms, etc) and international holding, slaughter/butcher/process, cross border transport (transportation, relocation, translocation), international distribution and market, local market, local and international end user. <ul style="list-style-type: none"> ○ <i>Who’s at risk and associated levels of risk (query – would this be better in section 8)</i> ○ Types of risk including examples 	<p>Start with 1-2 dot points to explore approach/content</p>

Section of the Guidelines – Notes from September and November meetings	Next Steps
<ul style="list-style-type: none"> ○ Disease risk interventions and reduction strategies, including benchmark / minimum standards ○ Links to current guidance already available (could be combined / linked to section above item) ○ Points of variation – e.g., how a specific supply chain point may vary based on associated risk factors and regional reality. ○ Skill sets, training opportunities and capacity requirements ○ Opportunities for surveillance ○ Regulatory interventions / accountable and responsible authorities <p>Resources</p> <ul style="list-style-type: none"> - Table 1 in Hilderink MH & de Winter II (2021). No need to beat around the bushmeat–The role of wildlife trade and conservation initiatives in the emergence of zoonotic diseases. Heliyon, e07692. - AUSTRALIAN STANDARD FOR THE HYGIENIC PRODUCTION OF WILD GAME MEAT FOR HUMAN CONSUMPTION - Australia - Export Control (Wild Game Meat and Wild Game Meat Products) Rules 2021 <p>Sep 2021 meeting updates:</p> <ul style="list-style-type: none"> - Start with 1-2 dot points to explore approach/content <p>Nov 2021 meeting updates:</p> <ul style="list-style-type: none"> - Group agreed that the focus of this section was on preventing the transmission of potential pathogens from/among wildlife along wildlife supply chains. - Consider use of the word “strategy” instead of “technique” - Approaches to consider - Precautionary principle, the Hazard Analysis and Critical Control Points system (HACCP) , the Hierarchy of Controls (Ref: CDC) and primary, secondary and tertiary levels of prevention (ref: https://www.statpearls.com/articlelibrary/viewarticle/27736/). to be discussed in section 6 – risk assessment). - To potentially draw upon a resource developed by OHHLEP (One Health High Level Expert Panel) which explores HACCP for 11 interfaces, including wildlife trade and bushmeat. - Reference to “Prevent, Minimize, Assess, Protect “ was from IUCN/OIE 2021 guideline. - To consider using the hierarchy of control instead, against which interventions could be listed: Elimination, substitution, engineering controls, administrative controls, PPE (as applied to SARS-CoV-2 and Wildlife by CDC). The theory that underpins the hierarchy of control is that the control methods at the top of graphic (e.g. prevention) are potentially more effective and protective than those at the bottom (e.g. PPE). 	

Section of the Guidelines – Notes from September and November meetings	Next Steps
<ul style="list-style-type: none"> - To include information on: <ul style="list-style-type: none"> o How to apply each risk reduction strategy and intervention, what the benefit / impacts of each could be (+/- the pros/cons), assessment of effectiveness via monitoring and evaluation (as outlined in section 8) noting the importance of feedback loops to modify, review or change strategies and interventions. o Balance between controls, implications, benefits and possible harmful impacts. - Generic wildlife trade infographic – need to add wildlife farms. - Checklist approach would be beneficial. Various infographics considered. - To note the importance of cross-sectoral communication and coordinated interventions. - Inclusion of examples to demonstrate application - Links to hazard identification and risk assessment in section 6; this section to include risk management - Risk communication and training could be addressed and linked to section 10. 	
<p>8. Tools and guidance on monitoring and evaluation across a range of potential benchmarks or indicators.</p> <ul style="list-style-type: none"> - For example, monitoring and evaluating uptake and compliance, changes in wildlife trade indicators (e.g., volume), unintended consequences and / or phasing out of specific practices. Many approaches were discussed, including use of data that are already being captured (TRAFFIC, CITES, INTERPOL, etc) and / or wildlife disease surveillance to identify successful mitigation techniques. Key indicators and metrics need to be tied to testable outcomes. It was noted that this section may provide general advice in the guidelines, however developing effective monitoring and evaluation tools was a body of work in itself and out of scope. - Upstream and downstream impacts - Surveillance – wildlife, domestic animals and humans [e.g. Wildlife surveillance, sampling, monitoring and testing: Ante-mortem and post-mortem inspections, Disease investigation, Identification, traceability, and record keeping] <p>Sep 2021 meeting updates:</p> <ul style="list-style-type: none"> - Overview of why this is important, concepts of application, what could be monitored/evaluated and why, what data is available to use – wildlife trade as well as disease. - This was noted as a critical important section. <p>Nov 2021 meeting updates:</p> <ul style="list-style-type: none"> - Useful to link monitoring and evaluation to guidance provided in sections 6 and 7 	<p><i>Draft by next meeting</i></p>

Section of the Guidelines – Notes from September and November meetings	Next Steps
<ul style="list-style-type: none"> - Noted that examples would be useful in this section. - Inclusion of viewpoint from multiple stakeholders when designing monitoring and evaluation tools. - Cross-sectoral communication and coordinated interventions critical to circumvent negative outcomes. - Group noted that behavioural shifts are likely to be more effective if they are grounded in the relevant socio-cultural structure, in addition to governance. - Benchmarks - The question is at what leverage point of the socio-ecological system you set the benchmark. Options include: numerical benchmarks, define process or principles of establishing processes. Description of leverage points is given by the Donella Meadows Project. <p>Dec 2021 meeting updates:</p> <ul style="list-style-type: none"> - To build on the theory of change being recommended earlier in the document. - Highlight the importance and usefulness of monitoring and evaluation. - Note that the approach to monitoring and evaluation will change and be dependent on local setting or application. - Try to present a list of off-the-shelf indicators (that already exist) – trying to utilise these. - Guidance on how to choose indicators and when they might not work or what to use when an indicator is missing / not available. - Provision of a few examples, perhaps two in contrast to each other would be a useful demonstrate the need to consider local factors and stakeholders to implement an M&E framework to ensure it is fit-for-purpose for the context. <ul style="list-style-type: none"> o Reduce the demand for wildlife products – monitor number of species transiting in trade o Reduce the risk of pathogens in the wildlife market –monitor pathogen contamination - By providing example, this would present a starting point that users can modified as they become familiar with the guidelines. - Disaster indexes may also be useful – DDR. e.g. https://www.unisdr.org/files/47063_indicatorsformeasuringtheintegratio.pdf 	
<p>9. Tools to identify critical capacity gaps and requirements</p> <p>Sep 2021 meeting updates:</p> <ul style="list-style-type: none"> - Outline the tools that are already available <p>Nov 2021 meeting updates:</p> <ul style="list-style-type: none"> - Bridging workshops, OIE Performance of Veterinary Services [PVS] tool, WHO Joint External Evaluation [JEE] process, National Action plans, NWHC needs assessment, Surveillance evaluation tool (FAO). 	

Section of the Guidelines – Notes from September and November meetings	Next Steps
<ul style="list-style-type: none"> - Identify gaps, needs and capacity requirements (e.g. for requirements outlines in sections 6,7,8) - Governance structures and mandates. - Finance incentives and justification <p>Dec 2021 meeting updates</p> <ul style="list-style-type: none"> - Competencies and assessment tools will somewhat be dependant on context presented in earlier sections. - Present an overview of the tools that are already available (e.g. PVS, JEE, One Health Zoonotic Disease Prioritisation tool), noting which to use, when to use as well as limitations as applied to wildlife trade. Advice could be audience specific. - Potential to also include tools that are missing. - Need to allow for ongoing changing conditions, unexpected impacts, new behaviours, black market, etc - Some country examples may be beneficial - Cost/ benefit for different strategies and resourcing requirements (\$\$) - Also mentioned sustainability assessments available within CITES; the information in this document could be utilised by CITES and vice versa. 	
<p>10. Advice on implementation, risk communication and training</p> <p>Sep 2021 meeting updates:</p> <ul style="list-style-type: none"> - Outline the tools that are already available - General guidance for the need for behaviour change tools and the recognition this needs to be adapted to social context and links to public health advice; need to partner with other groups <p>Nov 2021 meeting updates:</p> <ul style="list-style-type: none"> - Useful to link this section with the section on target audience, considering the different audiences when developing, and implementation communication and training. - Examples and incentives could be provided. - Draw on National Bridging workshops, PREDICT, lesson learnt from other initiatives - Noted development of the OIE eLearning Modules on wildlife trade. To be developed based on content of the guidelines. Two modules: Day 2 competency and expert. - Product development and implementation, enabling factors: political will, finance, resources, institutional capacity, technical knowledge, etc - Risk communication and training could be addressed in section 7 	<p><i>Draft by next meeting</i></p>

Section of the Guidelines – Notes from September and November meetings	Next Steps
<p>Dec 2021 meeting updates</p> <ul style="list-style-type: none"> - Stakeholders, trusted information sources, tailoring your outreach. - Knowledge practice and outreach surveys. - Simulation exercises are outlined and how they could be applied to the wildlife trade. Testing capacity and gaps. - Lesson learnt and how to share at a local, regional and global practice. - Outline potential incentives. - Context in relation to resources (\$\$) – some examples 	
<p>11. Terminology and definitions</p> <p>Clear definitions for “wildlife”, “wild animals” and “captive wild animals” (farm, zoo, pets, etc), in light of WOAHA definitions, will be required within the guidelines.</p> <p>Resources with glossaries which could be utilised</p> <ul style="list-style-type: none"> - IPBES Workshop on Biodiversity and Pandemics Report² - Statement of the OIE Wildlife Working Group, April 2020: Wildlife Trade and Emerging Zoonotic Diseases (April 2020)³ - Reducing public health risks associated with the sale of live wild animals of mammalian species in traditional food markets (Interim Guidance issued by WHO, OIE, UNEP on 12 April 2021)⁴ - OIE Terrestrial Animal Health Code⁵ (<i>need to consider that ferrets are out of scope, ensure aquatics considered</i>) - <i>Include wildlife welfare definitions (e.g. five domains / freedoms) [DJ Mellor as reference for 5 Domains: https://www.mdpi.com/2076-2615/10/10/1870/htm]</i> <p>Nov 2021 meeting updates:</p> <ul style="list-style-type: none"> - Collating definitions used in key resources to provide a basis from which definitions to use in guidelines, aiming to have definitions which align and are not in conflict with other resources. - List of wildlife uses and link to target audiences to be developed. <p>Dec 2021 meeting updates</p> <ul style="list-style-type: none"> - Ongoing updates 	<p><i>Continue to collate definitions available – finalise to align with guideline content.</i></p>
<p>12. Outline of key documents and guidance already available – including standards, guidelines and training manuals of the OIE, FAO, WHO, UNEP, etc.</p>	

² <https://ipbes.net/pandemics>

³ https://www.oie.int/en/document/a_oiewildlifetradestatement_april2020-2/

⁴ <https://cdn.who.int/media/docs/default-source/food-safety/ig-121-1-food-safety-and-covid-19-guidance-for-traditional-food-markets-2021-04-12-en.pdf>

⁵ <https://www.oie.int/en/what-we-do/standards/codes-and-manuals/terrestrial-code-online-access/>

Section of the Guidelines – Notes from September and November meetings	Next Steps
<ul style="list-style-type: none"> - WHO-OIE-UNEP 2021 Reducing public health risks associated with the sale of live wild animals of mammalian species in traditional food markets (Interim Guidance issued on 12 April 2021) - WHO (2006) A Guide to Healthy Food Markets https://www.who.int/foodsafety/capacity/healthy_marketplaces/en/ - WHO (2018) Surveillance of foodborne diseases. https://www.who.int/foodsafety/areas_work/foodborne-diseases/fbd_surveillance/en/ - WHO (2006). Public health interventions for prevention and control of avian influenza. https://apps.who.int/iris/bitstream/handle/10665/205700/B0237.pdf - OIE (2021). Terrestrial Animal Health Code. https://www.oie.int/standard-setting/terrestrial-code/access-online/ - WHO (2006). Public health interventions for prevention and control of avian influenza. https://apps.who.int/iris/bitstream/handle/10665/205700/B0237.pdf - FAO/OIE/WHO. FSO/OIE/WHO Stop the spread: Measures to stop the spread of highly pathogenic bird flu at its source (2005) https://www.who.int/influenza/resources/documents/stop_spread_bird_flu/en/ - FAO (2019) TECHNICAL GUIDANCE PRINCIPLES OF RISK-BASED MEAT INSPECTION AND THEIR APPLICATION http://www.fao.org/3/ca5465en/CA5465EN.pdf - FAO/OIE/WHO (2021) SARS-CoV-2 in animals used for fur farming GLEWS+ Risk assessment http://www.fao.org/3/cb3368en/cb3368en.pdf - UNODC 2020 The Potential of pathogen exposure from wildlife seizures: Guidance for evaluating and reducing the risks of transmission to frontline enforcement officers. 	
<p>Dec 2021 meeting updates</p> <ul style="list-style-type: none"> - Drafted with key resources provided in section that align with the guideline's sections. As more resources are identified, these can be added to this section. 	

Annex IV.

REPORT OF THE MEETING OF THE WOA *AD HOC* GROUP ON REDUCING THE RISK OF DISEASE SPILLOVER EVENTS AT MARKETS SELLING WILDLIFE AND ALONG THE WILDLIFE SUPPLY CHAIN (Virtual meeting, 28 January 2022)

1. Opening of the meeting and purpose of the meeting

The WOA *ad hoc* Group on reducing the risk of disease spillover events at markets selling wildlife and along the wildlife supply chain, met virtually for the fifth time on 31 January 2022, hosted by WOA's headquarters based in Paris. The Group's first meeting was held in June, the second, third and fourth meetings held in September, November and December, respectively.

Dr William Karesh, Chair of the Group, welcomed the participants.

Dr Karesh highlighted that the purpose of this fifth meeting was to further progress the work of the Group, discuss groups for pre-release review of the guidelines, and the timelines for outputs.

2. Designation of rapporteur

The meeting was chaired by Dr William Karesh and James Compton acted as rapporteur

3. Adoption of the agenda

The Group adopted the Agenda. The Agenda and List of Participants are presented in Appendices I and II of this report, respectively

4. Sub-working groups updates and discussion

The Group worked through the table of contents. Progress, content and approach for each section were discussed. Overarching themes of discussion are captured below with detailed additions and considerations for each section provided in the table of contents in Appendix III.

The Group re-identified the need to include a summary infographic to show how the sections within the guidelines inter-link with and inform the other sections. In addition, the group also identified the need to explore the sequence of sections 2-4 (context setting, scope, audience and limitation) when pulling everything together.

There was further discussion on the need for the guidelines to provide practical and tangible recommendations, tool and techniques, in addition to examples. The group also discussed the extent to which the guidelines should be prescriptive, highlighting the benefits and possible risks. For example, providing a checklist may be seen as an exhaustive list of factors, stakeholders, indicators, etc to be considered. It was agreed that checklists, if and where provided, should clearly highlight that they are provided as examples from which to build upon following consultation and discussion with key stakeholders and taking into account the socio-economic, cultural, and conservation considerations bespoke to the scenario to be addressed.

The group identified the need to clearly articulate that any uncertainty arising from limited wildlife health and disease baseline information, validated diagnostic tests or information bias, must be clearly identified, documented, and acknowledged as part of the process. For example, a species for which disease surveys have been done and zoonotic diseases identified may be perceived as a higher risk than another species for which there is limited or no disease information. These limitations highlight the need to engage key scientific and technical wildlife health subject matter experts as well as wildlife trade experts.

One aspect of wildlife trade that was identified as central to the guidelines and sets wildlife trade and use apart from domestic animal trade is the need for a preceding question to consider the wildlife population itself – i.e., is it healthy and can it be sustainably harvested?

Ideally sections could, where beneficial, provide: an overarching goal or recommendation, a list of stakeholders as well as barriers, limitations and challenges.

5. Key reviewer groups

The guidelines would benefit from review by two groups: The first being a user group to ensure the guidelines are fit for purpose. This group would include representative drawn from WOAHA members and other key stakeholder groups, such as IUCN Specialist Groups or CITES to ensure they are fit for purpose. Ideally this group would also draw upon potential users who have not had much to do with wildlife trade that may need to develop a risk reduction approach to a specific scenario or country. The second group would be a small (up to 3) subject matter experts review group. Members of the Group were requested to provide suggestions out of session.

6. Programme for further work after this meeting

The Group will meet again for its sixth meeting at the start of March 2022. Revised drafts of each section will be finalised ~10 days prior to the meeting to allow for advance review.

7. Finalisation of the report

The report was finalised and adopted by the Group at the following meeting of the Group

Agenda

**REPORT OF THE MEETING OF THE WOA *AD HOC* GROUP ON
REDUCING THE RISK OF DISEASE SPILLOVER EVENTS AT MARKETS SELLING WILDLIFE
AND ALONG THE WILDLIFE SUPPLY CHAIN
(Virtual meeting, 28 January 2022)**

1. **Opening and purpose of the meeting**
 2. **Designation of rapporteur**
 3. **Adoption of the agenda**
 4. **Adoption of the previous meeting report**
 5. **Sub-working groups updates**
 6. **User Group and subject matter expert group**
 7. **Programme for further work after this meeting**
-

List of Participants
REPORT OF THE MEETING OF THE WOAAH AD HOC GROUP ON
REDUCING THE RISK OF DISEASE SPILLOVER EVENTS AT MARKETS SELLING WILDLIFE AND
ALONG THE WILDLIFE SUPPLY CHAIN
(Virtual meeting, 28 January 2022)

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Dr Francisco D'Alessio
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 Deputy Head
 Standards Department

Dr François Diaz
 Chargé de mission
 Preparedness and Resilience Department

Draft Table of Contents (as of 1 February 2022)
(revised following meeting on 31 January 2022)
REPORT OF THE MEETING OF THE WOAHA AD HOC GROUP ON
REDUCING THE RISK OF DISEASE SPILLOVER EVENTS AT MARKETS SELLING WILDLIFE AND
ALONG THE WILDLIFE SUPPLY CHAIN
(Virtual meeting, 28 January 2022)

Section of the Guidelines – Notes from September and November meetings	Next Steps
<p>13. Executive Summary</p> <p>Dec 2021 meeting updates:</p> <ul style="list-style-type: none"> - Summary infographic to show how the sections within the guidelines inter-link with and inform the other sections 	<i>To be considered at later stage</i>
<p>14. Scope</p> <ul style="list-style-type: none"> - Infectious pathogens at all interfaces where direct, indirect or vector-borne transmission leads to a risk of disease spillover to humans, domestic animals, or wildlife. - Wild animals and captive wild animals (zoos, pets, farms, etc) involved in wildlife trade. - Feral animals, however, were considered out of scope. - Terrestrial and aquatics - <i>Include a general statement noting the principles and techniques / tools within these guidelines could be applied / useful for settings that may not necessarily be covered in detail in this document</i> 	<i>Tweak to fit with final product</i>
<p>15. Purpose, intended goals and limitations</p> <p>Dec 2021 meeting updates:</p> <ul style="list-style-type: none"> - highlight to users (of the guidelines) of the need to establish what the policy goals are from the start. This will inform each user's process of thinking in implementing the guidelines. <p>Jan 2022 meeting update:</p> <ul style="list-style-type: none"> - Highlight that the guidelines provide practical examples and provide a scaffold to the approach, rather than explicit recommendations. - Limitations to wildlife health and disease knowledge base, diagnostic tests validated for wildlife and uncertainty arising from information bias. For example, some species are well studied whereas others are not. These limitations highlight the need to engage key scientific and technical wildlife health subject matter experts as part of the process. 	<i>Tweak to fit with final product</i>
<p>16. Introduction / Background / Scene setting</p>	1-2 pager

Section of the Guidelines – Notes from September and November meetings	Next Steps
<ul style="list-style-type: none"> - Interconnectedness of the health of humans, domestic animals and wildlife - Animal welfare related to wildlife trade - Wildlife trade overview “... highlight the complexities of wildlife trade and supply chain, outline the similarities, differences, and interdependences with domestic animal trade, provide examples of how interventions may have upstream and downstream impacts when implemented, and also provide common language to enable promotion and engagement....” - Conditions for effective spillover of a pathogen from a source wildlife host to a spillover host and vice versa? - “external factors as targets for intervention / mitigation strategies.... disease prevention, wildlife health resilience, drivers for social change or more specifically frontline disease transmission risks. For example [discussion or recommendations relating to the benefits of]...disease / health intelligence systems that could drive surveillance activities, identify disease risks early and address drivers of disease spillover at its root cause (e.g., limiting system disruptions due to land-use, climate change or animal production change). ...” - FAO. 2020. The COVID-19 challenge: Zoonotic diseases and wildlife. Collaborative Partnership on Sustainable Wildlife Management’s four guiding principles to reduce risk from zoonotic diseases and build more collaborative approaches in human health and wildlife management.⁶ <p>Nov 2021 meeting updates:</p> <ul style="list-style-type: none"> - Provide an overview on wildlife trade and then provide overview on elements relating to health. <p>Dec 2021 meeting updates:</p> <ul style="list-style-type: none"> - 1st paragraph in Section 6 to be moved into this section. <p>Jan 2022 meeting update:</p> <ul style="list-style-type: none"> - Determine interaction in relation to content in section 2 “Scope” - Theory of change diagram / diagram outlining how the guidelines are used to ensure the feedback loop. - Multi-agency approach required and should be recommended by guidelines. Barriers and challenges need to be flagged. - Risk assessment is an approach that can help to reduce risk – should be recommended in guidelines. - Emphasis and note the important of sustainable wildlife use; CITES provides the guidance here. 	
<p>17. Intended Audiences & Stakeholders / Engagement and communication</p> <ul style="list-style-type: none"> - Key Audience: National government authorities with mandates for animal health, public health, wildlife management, wildlife trade and enforcement, 	<p>Short para to include Scope /- introduction</p>

⁶ <http://www.fao.org/3/cb1163en/CB1163EN.pdf>

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<p>and frontline personnel along the wildlife trade value chain were identified as the key target audiences for the guidelines.</p> <ul style="list-style-type: none"> - Outline other audiences and outline how each audience may use / interact with the guidelines. <p>Dec 2021 meeting updates:</p> <ul style="list-style-type: none"> - Introductory paragraph placeholder completed. - A key audience = OIE stakeholders inclusive of animal health and veterinary services - Raising awareness and use of the guidelines by additional stakeholder could be facilitated via OIE stakeholders. - Inclusion of frontline workers was discussed. <p>Jan 2022 meeting update:</p> <ul style="list-style-type: none"> - Consider adding stakeholders to this section. E.g. outline key users groups and knowledge sources to communicate and engaged with as part of the process. This should include those who can provide technical disease or conservation input, others who provide knowledge relating to policy, cultural, social, regulatory, legal and economic considerations, as well as those who provide perspectives of those impacted by any change to be implemented. - Propose how these stakeholder work together (e.g. set up a steering committee); referencing and referring to multi-sectoral collaboration as discussed in the Tripartite Zoonosis Guide and IUCN/OIE DRA guidelines. - Recommendation: a minimum sectors/agencies that should be involved: Wildlife authorities (Management and/or Trade), Animal Health Authorities (WOAH points of contact), epidemiologist/statisticians. - Reiterate the need for inclusion and equity in voices (including indigenous) - Example: Swiss law requires One Health collaboration. Mathias provided an example: Swiss legislation mandates the Government build a structure dealing with coordinated work on One health topics. Art. 54 Coordination body in the Swiss Federal Act on Controlling communicable human diseases (Epidemic Act) and the corresponding articles 83 and 84 of the relevant ordinance provides an example of when, how and who to involve when dealing with specific topics such as detecting and monitoring, preventing and combating zoonoses. This could be featured as a Text Box within the Guidelines to highlight good practice at the national level. 	
<p>18. Approach to risk assessment / decision framework</p> <ul style="list-style-type: none"> - Drawing on guidelines already developed in addition to specific risk frameworks developed for the wildlife trade sector (e.g. Sleeman et al (in prep), IUCN/OIE DRA, Wikramanayake et al (2021), and others) to provide an overview. <ul style="list-style-type: none"> o Assessment of risk with limited information o Context of assessing risk: Risk to who: human health, domestic animal health, wildlife health; Assessing risk through multiple lens 	

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<p>e.g. biodiversity, conservation, economic, local culture and livelihoods, agriculture, etc</p> <ul style="list-style-type: none"> ○ Geographic differences ○ Species/Taxa differences ○ Wildlife trade / supply chain environment differences <p>Sep 2021 meeting updates:</p> <ul style="list-style-type: none"> - Outline of approach and considerations for risk assessment; decision making and tools - FAO Animal Health Colleagues could also assist with this section (via Kristina) <p>Nov 2021 meeting updates:</p> <ul style="list-style-type: none"> - To include information on quantitative and qualitative risk assessment and considerations relating to each when applied to the pathogen risks and wildlife trade. Tripartite joint risk assessment was noted : https://www.who.int/initiatives/tripartite-zoonosis-guide/joint-risk-assessment-operational-tool - Provide context to use of the precautionary approach, the Hazard Analysis and Critical Control Points system (HACCP) , Hierarchy of Controls (Ref: CDC) and primary, secondary and tertiary levels of prevention (ref: https://www.statpearls.com/articlelibrary/viewarticle/27736/). - Many risks unknown, risk rating should be based on High / Medium / Low or Red / Orange / Yellow gradient. - Importance of including a diversity of perspective through cross-sectoral consultation was critical part of the risk assessment process. Example: Integrating gender into Illegal wildlife trade thinking and responses - Inclusion of examples to demonstrate application - This section to focus on hazard identification and assessment, and link to section 7 which will cover risk management <p>Dec 2021 meeting updates:</p> <ul style="list-style-type: none"> - Conference call held with the sub-group to inform the draft. - A decision context framed to explore three main trade-offs and the need for inclusive decision-making framework. - Diagram / examples to be included to demonstrate how to balance the trade-offs. - Note: Precautionary principle may be a better fit for the next section. - Intro to risk analysis and brief overview for each of the various papers. - Would be great to include examples of the tangible factors that could be considered during risk assessments (Host taxa, locations, market type, etc) 	

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<ul style="list-style-type: none"> - Useful to consider the perspective in this section and section #7 – considering “who” is managing risks “where”. <ul style="list-style-type: none"> o “within a country” will refer to assessing and managing the risks along the broad “wildlife trade” chain and will probably be highly focused on coordination between agencies (gov and NGOs) and actors within a country. o “between countries” will imply mainly government to government interactions or international organizations to define requirements for international trade or border/customs control. o These would be complementary, meaning a stronger “in country” policy and approach to assess and manage the risks will provide greater safety to potential exports. The information gathered along the chain and a set of well-documented measures implemented by a strong national system will provide the best assurances to support safe exports and will be much more effective than standalone measures applied at export. Naturally, the national measures should also include assessing and managing risks presented by imports. - Code chapters on Import Risk Analysis would be worth noting in this chapter, but more so in Section 7. <p>Jan 2022 meeting update:</p> <ul style="list-style-type: none"> - Systems thinking paragraph to be reviewed by Simon - Uncertainty covered in section about the precautionary principle (possibly move to next section) - Case examples to be included: guinea pigs import into Hong Kong example, salamander trade, import risk assessment from countries (Australia import risk assessment available online), Amanda has some examples from SE Asia - Recommendation from this section: Risk analysis is key approach to reduce risk - Provision of risk factor table or checklist – to also include in an appendix - Need to note that decision making could impact both upstream or downstream (supply chain) and therefore there is a need to be mindful of what consequences may ensue based on at what point the intervention is made. 	
<p>19. Overview of risk reduction techniques and interventions</p> <ul style="list-style-type: none"> - General: Prevent, Minimize, Assess, Protect (or similar simple framework to structure options) - Options: e.g. closing or managing wildlife or wet markets, trade bans, sanitary regulations and biosecurity, improved animal health and welfare, reducing demand, culling, farming, and socioecological interventions. - IPBES, WHO-OIE-UNEP interim guidance, and Stephen 2021 report, specifically Table 3.1 and 3.2. 	<p>Start with 1-2 dot points to explore approach/content</p>

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<ul style="list-style-type: none"> - Application of existing trade and sanitary standards - Use the generic supply chain infographic as the basis, set out a series of sections which address the following elements against the infographic. Generic Wildlife Trade Supply Chain: free-ranging wildlife, harvest/capture/hunt, local (incl. farms, etc) and international holding, slaughter/butcher/process, cross border transport (transportation, relocation, translocation), international distribution and market, local market, local and international end user. <ul style="list-style-type: none"> o <i>Who's at risk and associated levels of risk (query – would this be better in section 8)</i> o Types of risk including examples o Disease risk interventions and reduction strategies, including benchmark / minimum standards o Links to current guidance already available (could be combined / linked to section above item) o Points of variation – e.g., how a specific supply chain point may vary based on associated risk factors and regional reality. o Skill sets, training opportunities and capacity requirements o Opportunities for surveillance o Regulatory interventions / accountable and responsible authorities <p>Resources</p> <ul style="list-style-type: none"> - Table 1 in Hilderink MH & de Winter II (2021). No need to beat around the bushmeat–The role of wildlife trade and conservation initiatives in the emergence of zoonotic diseases. Heliyon, e07692. - AUSTRALIAN STANDARD FOR THE HYGIENIC PRODUCTION OF WILD GAME MEAT FOR HUMAN CONSUMPTION - Australia - Export Control (Wild Game Meat and Wild Game Meat Products) Rules 2021 <p>Sep 2021 meeting updates:</p> <ul style="list-style-type: none"> - Start with 1-2 dot points to explore approach/content <p>Nov 2021 meeting updates:</p> <ul style="list-style-type: none"> - Group agreed that the focus of this section was on preventing the transmission of potential pathogens from/among wildlife along wildlife supply chains. - Consider use of the word “strategy” instead of “technique” - Approaches to consider - Precautionary principle, the Hazard Analysis and Critical Control Points system (HACCP) , the Hierarchy of Controls (Ref: CDC) and primary, secondary and tertiary levels of prevention (ref: 	

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<p>https://www.statpearls.com/articlelibrary/viewarticle/27736/). to be discussed in section 6 – risk assessment).</p> <ul style="list-style-type: none"> - To potentially draw upon a resource developed by OHHLEP (One Health High Level Expert Panel) which explores HACCP for 11 interfaces, including wildlife trade and bushmeat. - Reference to “Prevent, Minimize, Assess, Protect “ was from IUCN/OIE 2021 guideline. - To consider using the hierarchy of control instead, against which interventions could be listed: Elimination, substitution, engineering controls, administrative controls, PPE (as applied to SARS-CoV-2 and Wildlife by CDC). The theory that underpins the hierarchy of control is that the control methods at the top of graphic (e.g. prevention) are potentially more effective and protective than those at the bottom (e.g. PPE). - To include information on: <ul style="list-style-type: none"> o How to apply each risk reduction strategy and intervention, what the benefit / impacts of each could be (+/- the pros/cons), assessment of effectiveness via monitoring and evaluation (as outlined in section 8) noting the importance of feedback loops to modify, review or change strategies and interventions. o Balance between controls, implications, benefits and possible harmful impacts. - Generic wildlife trade infographic – need to add wildlife farms. - Checklist approach would be beneficial. Various infographics considered. - To note the importance of cross-sectoral communication and coordinated interventions. - Inclusion of examples to demonstrate application - Links to hazard identification and risk assessment in section 6; this section to include risk management - Risk communication and training could be addressed and linked to section 10. <p>Jan 2022 meeting update:</p> <ul style="list-style-type: none"> - Hierarchy of control the scaffold - Examples – specific known examples as well as generic examples; building on the diagram examples provided below. 	
<p>20. Tools and guidance on monitoring and evaluation across a range of potential benchmarks or indicators.</p> <ul style="list-style-type: none"> - For example, monitoring and evaluating uptake and compliance, changes in wildlife trade indicators (e.g., volume), unintended consequences and / or phasing out of specific practices. Many approaches were discussed, including use of data that are already being captured (TRAFFIC, CITES, INTERPOL, etc) and / or wildlife disease surveillance to identify successful mitigation techniques. Key indicators and metrics need to be tied to testable outcomes. 	<p><i>Draft by next meeting</i></p>

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<p>It was noted that this section may provide general advice in the guidelines, however developing effective monitoring and evaluation tools was a body of work in itself and out of scope.</p> <ul style="list-style-type: none"> - Upstream and downstream impacts - Surveillance – wildlife, domestic animals and humans [e.g. Wildlife surveillance, sampling, monitoring and testing: Ante-mortem and post-mortem inspections, Disease investigation, Identification, traceability, and record keeping] <p>Sep 2021 meeting updates:</p> <ul style="list-style-type: none"> - Overview of why this is important, concepts of application, what could be monitored/evaluated and why, what data is available to use – wildlife trade as well as disease. - This was noted as a critical important section. <p>Nov 2021 meeting updates:</p> <ul style="list-style-type: none"> - Useful to link monitoring and evaluation to guidance provided in sections 6 and 7 - Noted that examples would be useful in this section. - Inclusion of viewpoint from multiple stakeholders when designing monitoring and evaluation tools. - Cross-sectoral communication and coordinated interventions critical to circumvent negative outcomes. - Group noted that behavioural shifts are likely to be more effective if they are grounded in the relevant socio-cultural structure, in addition to governance. - Benchmarks - The question is at what leverage point of the socio-ecological system you set the benchmark. Options include: numerical benchmarks, define process or principles of establishing processes. Description of leverage points is given by the Donella Meadows Project. <p>Dec 2021 meeting updates:</p> <ul style="list-style-type: none"> - To build on the theory of change being recommended earlier in the document. - Highlight the importance and usefulness of monitoring and evaluation. - Note that the approach to monitoring and evaluation will change and be dependent on local setting or application. - Try to present a list of off-the-shelf indicators (that already exist) – trying to utilise these. - Guidance on how to choose indicators and when they might not work or what to use when an indicator is missing / not available. - Provision of a few examples, perhaps two in contrast to each other would be a useful demonstrate the need to consider local factors and stakeholders to implement an M&E framework to ensure it is fit-for-purpose for the context. 	

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<ul style="list-style-type: none"> ○ Reduce the demand for wildlife products – monitor number of species transiting in trade ○ Reduce the risk of pathogens in the wildlife market –monitor pathogen contamination - By providing example, this would present a starting point that users can modified as they become familiar with the guidelines. - Disaster indexes may also be useful – DDR. e.g. https://www.unisdr.org/files/47063_indicatorsformeasuringtheintegratio.pdf <p>Jan 2022 meeting update:</p> <ul style="list-style-type: none"> - Add evaluation of equity and Inter-agency collaboration - Consider this section being moved (perhaps to the end) noting the need for evaluation and monitoring at each stage of the process 	
<p>21. Tools to identify critical capacity gaps and requirements</p> <p>Sep 2021 meeting updates:</p> <ul style="list-style-type: none"> - Outline the tools that are already available <p>Nov 2021 meeting updates:</p> <ul style="list-style-type: none"> - Bridging workshops, OIE Performance of Veterinary Services [PVS] tool, WHO Joint External Evaluation [JEE] process, National Action plans, NWHC needs assessment, Surveillance evaluation tool (FAO). - Identify gaps, needs and capacity requirements (e.g. for requirements outlines in sections 6,7,8) - Governance structures and mandates. - Finance incentives and justification <p>Dec 2021 meeting updates</p> <ul style="list-style-type: none"> - Competencies and assessment tools will somewhat be dependant on context presented in earlier sections. - Present an overview of the tools that are already available (e.g. PVS, JEE, One Health Zoonotic Disease Prioritisation tool), noting which to use, when to use as well as limitations as applied to wildlife trade. Advice could be audience specific. - Potential to also include tools that are missing. - Need to allow for ongoing changing conditions, unexpected impacts, new behaviours, black market, etc - Some country examples may be beneficial - Cost/ benefit for different strategies and resourcing requirements (\$\$) - Also mentioned sustainability assessments available within CITES; the information in this document could be utilised by CITES and vice versa. 	

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<p>22. Advice on implementation, risk communication and training</p> <p>Sep 2021 meeting updates:</p> <ul style="list-style-type: none"> - Outline the tools that are already available - General guidance for the need for behaviour change tools and the recognition this needs to be adapted to social context and links to public health advice; need to partner with other groups <p>Nov 2021 meeting updates:</p> <ul style="list-style-type: none"> - Useful to link this section with the section on target audience, considering the different audiences when developing, and implementation communication and training. - Examples and incentives could be provided. - Draw on National Bridging workshops, PREDICT, lesson learnt from other initiatives - Noted development of the OIE eLearning Modules on wildlife trade. To be developed based on content of the guidelines. Two modules: Day 2 competency and expert. - Product development and implementation, enabling factors: political will, finance, resources, institutional capacity, technical knowledge, etc - Risk communication and training could be addressed in section 7 <p>Dec 2021 meeting updates</p> <ul style="list-style-type: none"> - Stakeholders, trusted information sources, tailoring your outreach. - Knowledge practice and outreach surveys. - Simulation exercises are outlined and how they could be applied to the wildlife trade. Testing capacity and gaps. - Lesson learnt and how to share at a local, regional and global practice. - Outline potential incentives. - Context in relation to resources (\$\$) – some examples <p>Jan 2022 meeting update – Section 9 & 10:</p> <ul style="list-style-type: none"> - Transparency in decision making - Noting that value chain and uses may be different - Recommending specifics (based on the risk assessment outcomes): e.g. surveillance, etc 	<p><i>Draft by next meeting</i></p>
<p>23. Terminology and definitions</p> <p>Clear definitions for “wildlife”, “wild animals” and “captive wild animals” (farm, zoo, pets, etc), in light of WOAHP definitions, will be required within the guidelines.</p> <p>Resources with glossaries which could be utilised</p>	<p><i>Continue to collate definitions available – finalise to align</i></p>

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<ul style="list-style-type: none"> - IPBES Workshop on Biodiversity and Pandemics Report⁷ - Statement of the OIE Wildlife Working Group, April 2020: Wildlife Trade and Emerging Zoonotic Diseases (April 2020)⁸ - Reducing public health risks associated with the sale of live wild animals of mammalian species in traditional food markets (Interim Guidance issued by WHO, OIE, UNEP on 12 April 2021)⁹ - OIE Terrestrial Animal Health Code¹⁰ (<i>need to consider that ferals are out of scope, ensure aquatics considered</i>) - <i>Include wildlife welfare definitions (e.g. five domains / freedoms) [DJ Mellor as reference for 5 Domains: https://www.mdpi.com/2076-2615/10/10/1870/htm]</i> <p>Nov 2021 meeting updates:</p> <ul style="list-style-type: none"> - Collating definitions used in key resources to provide a basis from which definitions to use in guidelines, aiming to have definitions which align and are not in conflict with other resources. - List of wildlife uses and link to target audiences to be developed. <p>Dec 2021 / Jan 2022 meeting updates</p> <ul style="list-style-type: none"> - Ongoing updates 	<p><i>with guideline content.</i></p>
<p>24. Outline of key documents and guidance already available – including standards, guidelines and training manuals of the OIE, FAO, WHO, UNEP, etc.</p> <ul style="list-style-type: none"> - WHO-OIE-UNEP 2021 Reducing public health risks associated with the sale of live wild animals of mammalian species in traditional food markets (Interim Guidance issued on 12 April 2021) - WHO (2006) A Guide to Healthy Food Markets https://www.who.int/foodsafety/capacity/healthy_marketplaces/en/ - WHO (2018) Surveillance of foodborne diseases. https://www.who.int/foodsafety/areas_work/foodborne-diseases/fbd_surveillance/en/ - WHO (2006). Public health interventions for prevention and control of avian influenza. https://apps.who.int/iris/bitstream/handle/10665/205700/B0237.pdf - OIE (2021). Terrestrial Animal Health Code. https://www.oie.int/standard-setting/terrestrial-code/access-online/ - WHO (2006). Public health interventions for prevention and control of avian influenza. https://apps.who.int/iris/bitstream/handle/10665/205700/B0237.pdf 	

⁷ <https://ipbes.net/pandemics>

⁸ https://www.oie.int/en/document/a_oiewildlifetradestatement_april2020-2/

⁹ <https://cdn.who.int/media/docs/default-source/food-safety/ig-121-1-food-safety-and-covid-19-guidance-for-traditional-food-markets-2021-04-12-en.pdf>

¹⁰ <https://www.oie.int/en/what-we-do/standards/codes-and-manuals/terrestrial-code-online-access/>

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<ul style="list-style-type: none"> - FAO/OIE/WHO. FSO/OIE/WHO Stop the spread: Measures to stop the spread of highly pathogenic bird flu at its source (2005) https://www.who.int/influenza/resources/documents/stop_spread_bird_flu/en/ - FAO (2019) TECHNICAL GUIDANCE: Principles of risk-based meat inspection and their application http://www.fao.org/3/ca5465en/CA5465EN.pdf - FAO/OIE/WHO (2021) SARS-CoV-2 in animals used for fur farming GLEWS+ Risk assessment http://www.fao.org/3/cb3368en/cb3368en.pdf - UNODC 2020 The Potential of pathogen exposure from wildlife seizures: Guidance for evaluating and reducing the risks of transmission to frontline enforcement officers. <p>Dec 2021 meeting updates</p> <ul style="list-style-type: none"> - Drafted with key resources provided in section that align with the guideline’s sections. As more resources are identified, these can be added to this section. 	

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