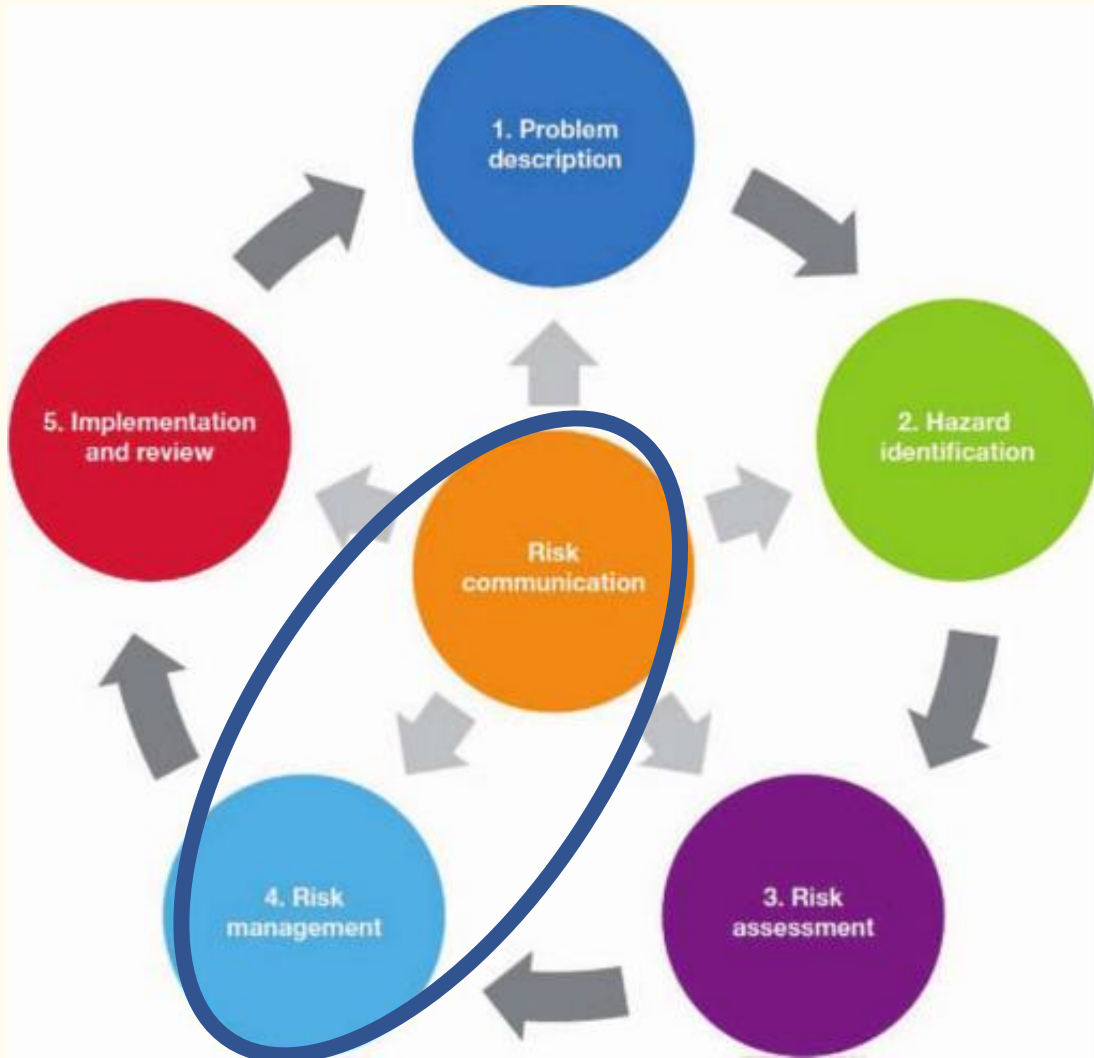# Risk Management

Wildlife Disease Risk Analysis (WDRA)

Online Training Course

WORKBOOK
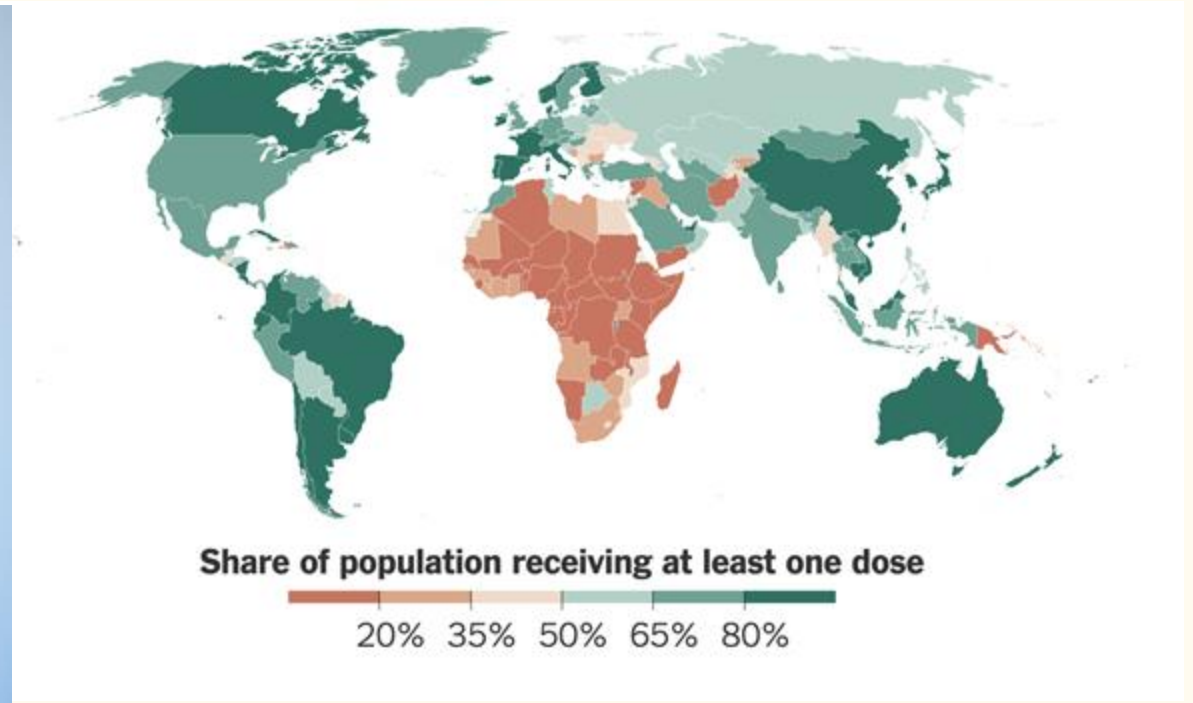
Project title:

Name:

Date:

Is it Effective?

Is it Feasible?

Share of population receiving at least one dose

20% 35% 50% 65% 80%

https://www.nytimes.com/interactive/2021/world/covid-vaccinations-tracker.html
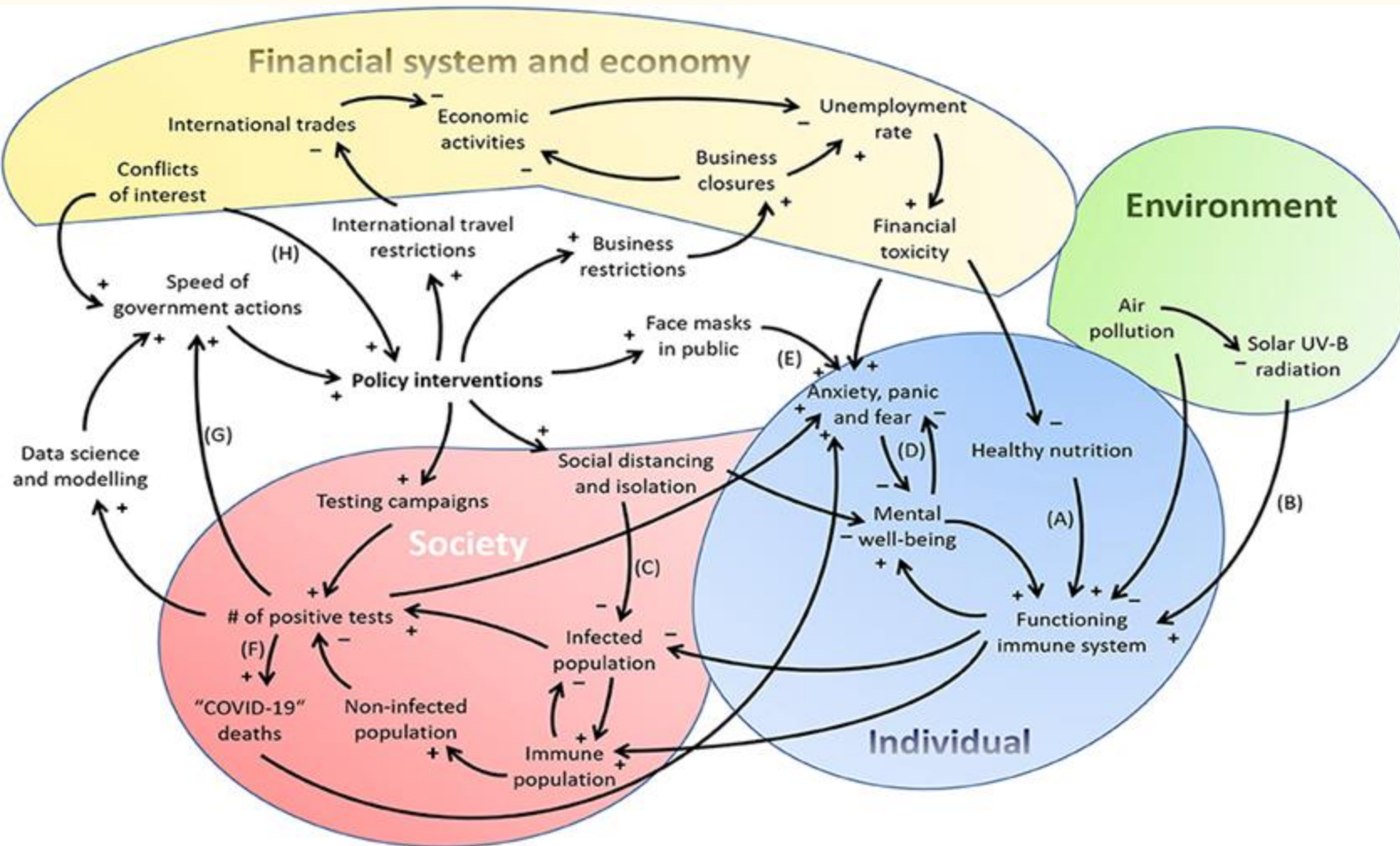
Chaotic systems: those that are neither knowable or predictable.

Klement RJ (2020) Systems Thinking About SARS-CoV-2. *Front. Public Health* 8:585229. doi: 10.3389/fpubh.2020.585229

Qualitative rank definitions

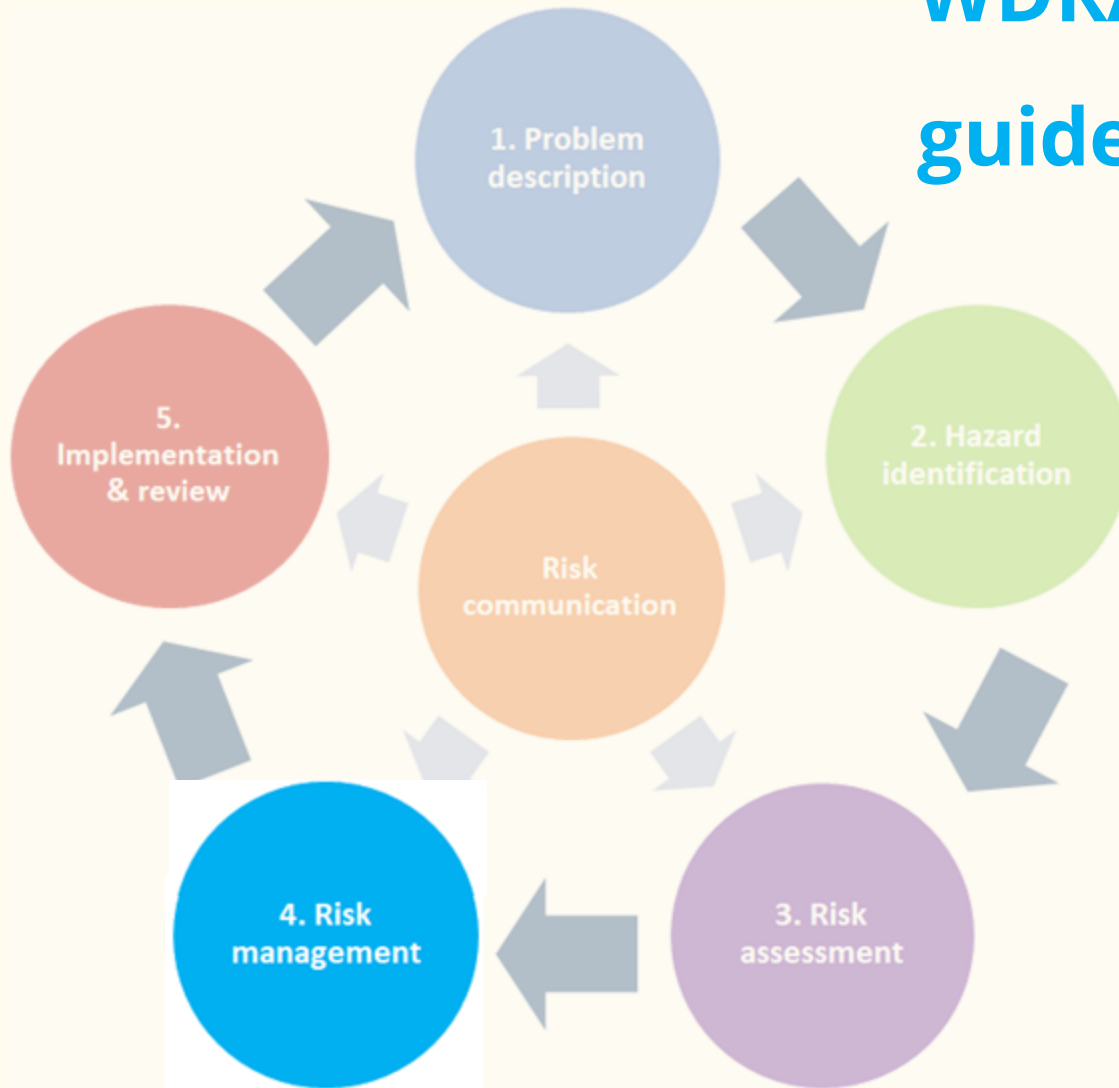| |
|---|
| Severe risk: Translocation is not advisable; other conservation solutions should be pursued |
| High risk: Translocation into wild populations is not advisable; extreme caution should be used for reintroduction |
| Moderate risk: Translocation may not be advisable; additional information is needed before proceeding |
| Negligible or low risk: Translocation is not expected to have marked negative impacts |

COVID-19 transmission and morbidity/mortality risk rating for orangutan rehabilitation and translocation scenarios

			Consequences				
			Insignificant	**Minor**	**Moderate**	**Significant**	**Catastrophic**
Species & ecosystem conservation consequences and likelihood			No expected risk to conspecifics, other taxa, or ecosystem	Low risk to conspecifics or ecosystem; possible risks to other taxa	Some risks for conspecifics and/or other taxa	Significant risk of possibly lethal effects in conspecifics and/or other local taxa; possible ecosystem effects	Lethal effects pose population or species risk; likely negative effects on other taxa or ecosystem
		Health & biosecurity consequences and likelihood	No health effect; little or no transmission risk	No long term health effect; little or no transmission risk	Some health effects, moderate transmission risk	Moderate risk of transmission and/or morbidity and mortality	High risk of transmission, morbidity / mortality, disease spillover
...ar ...tain	Species or ecosystem effects often occur in OU releases	Transmission or disease in OU happens regularly					
...ely	Species or ecosystem effects have occurred multiple times in GA or OU releases	Transmission or disease in GA or humans working with GA has occurred multiple times			**Reintroduction:** Lower initial risk of disease presence due to mitigation. Opportunities for infection through captivity, release and post-release human proximity. Released OU populations susceptible and non-immune; other taxa may be also	**Wild-to-wild translocation and reinforcement:** Many people in contact/proximity to OU. Confirmed human-GA transmissibility; all wild OU susceptible and non-immune; other taxa may be susceptible	**Tapanuli translocation:** Infection, death and transmission could pose catastrophic species impact and effect ecosystem; disease spillover to other taxa and local human populations possible
...ssible	Species or ecosystem effects have occurred at least once in OU or other primate releases	Has happened at least once before in GA or other primates, or in humans involved in GA care		**Captive OU:** Lowered risk of disease presence due to mitigation; any active infection poses high risk to OU which are susceptible and non-immune			

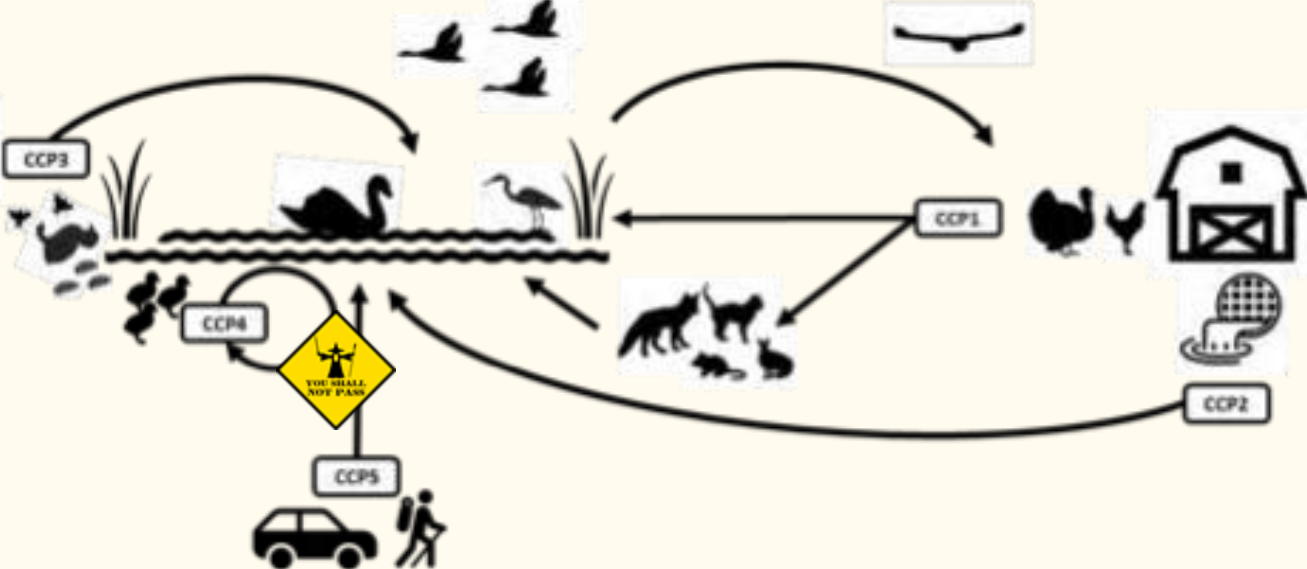# WDRA Step 4 (Section 2 of WT guidelines)

- Review **potential risk reduction** or **management options** and evaluate their likely outcomes

- On this basis **decisions and recommendations** can be made to **mitigate the risks** associated with the identified hazards.

Evaluating Risk Management Options

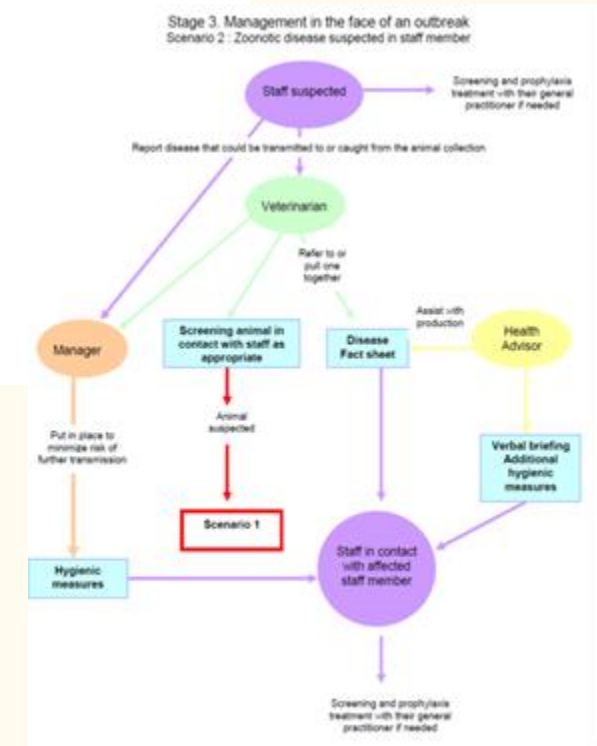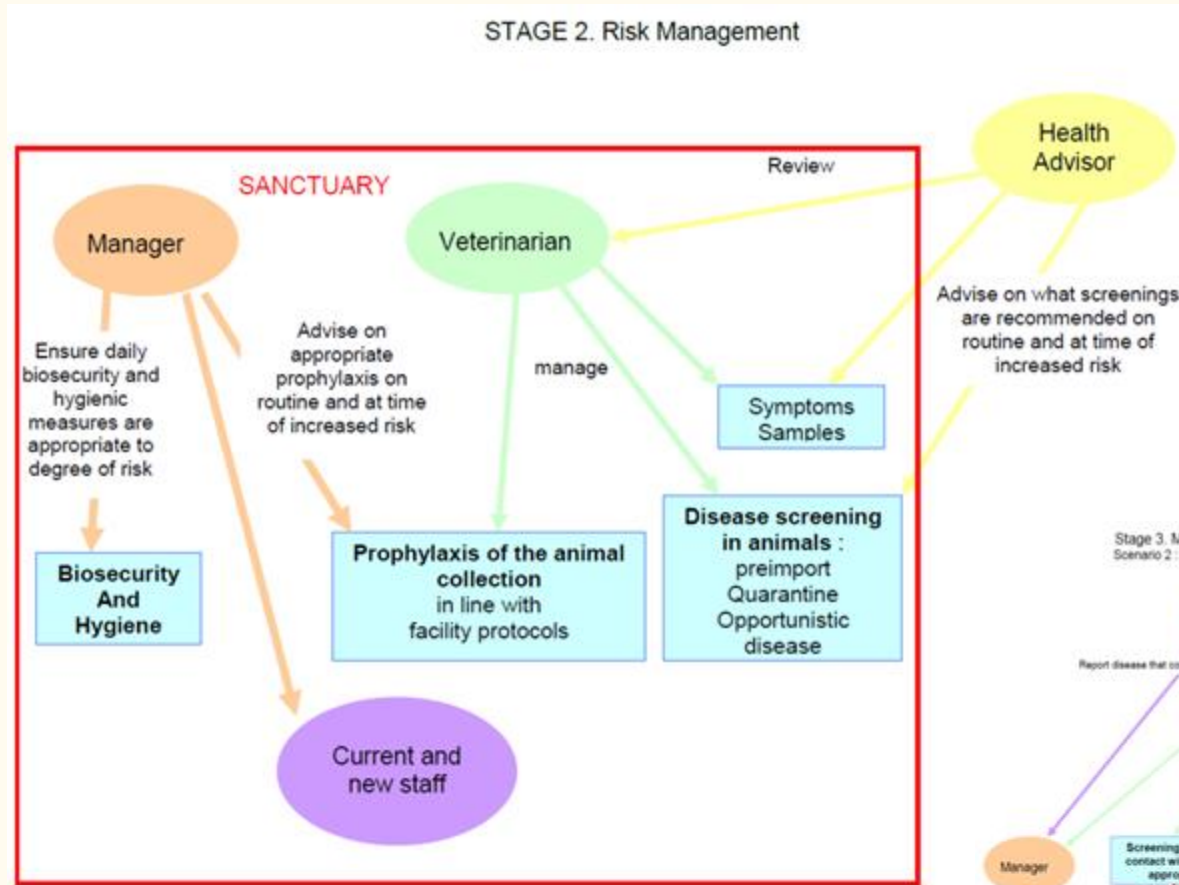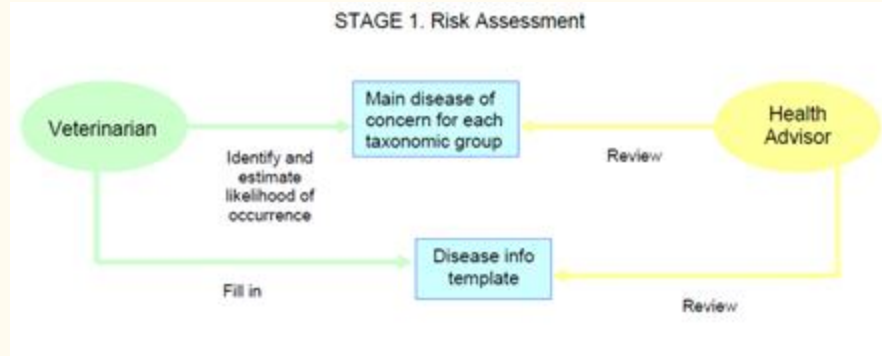© 1001Gece from Getty image via Canva.com

Hazard transmission pathways and critical control points (CCPs) for pasteurellosis.

Hazard transmission pathways and critical control points (CCPs) for pollutants.

Establish Critical Control Points (CCPs)
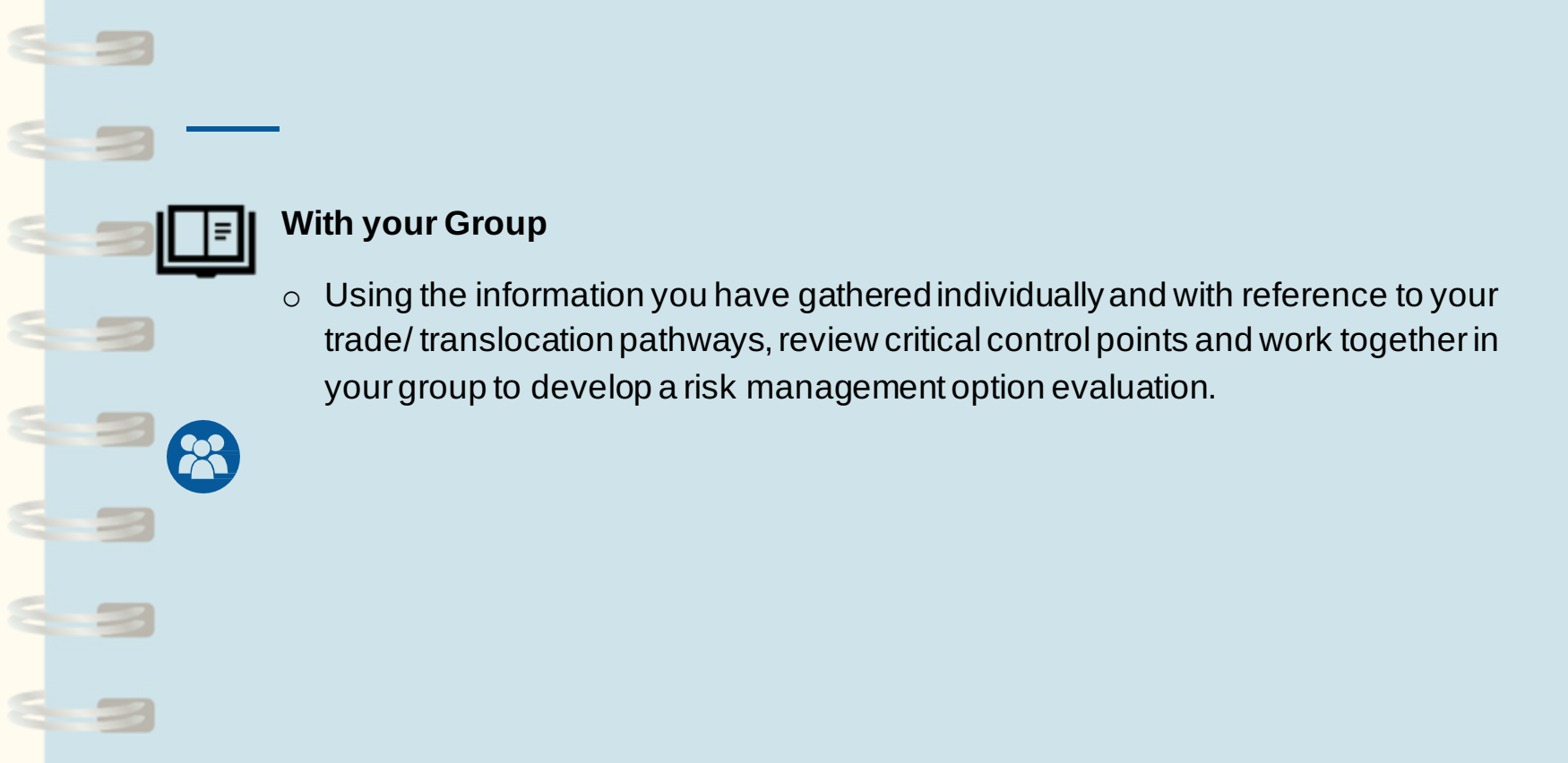
Increasing risk management feasibility through risk communication

Proposed avian epidemiological units vs indoors, netted or open aviary
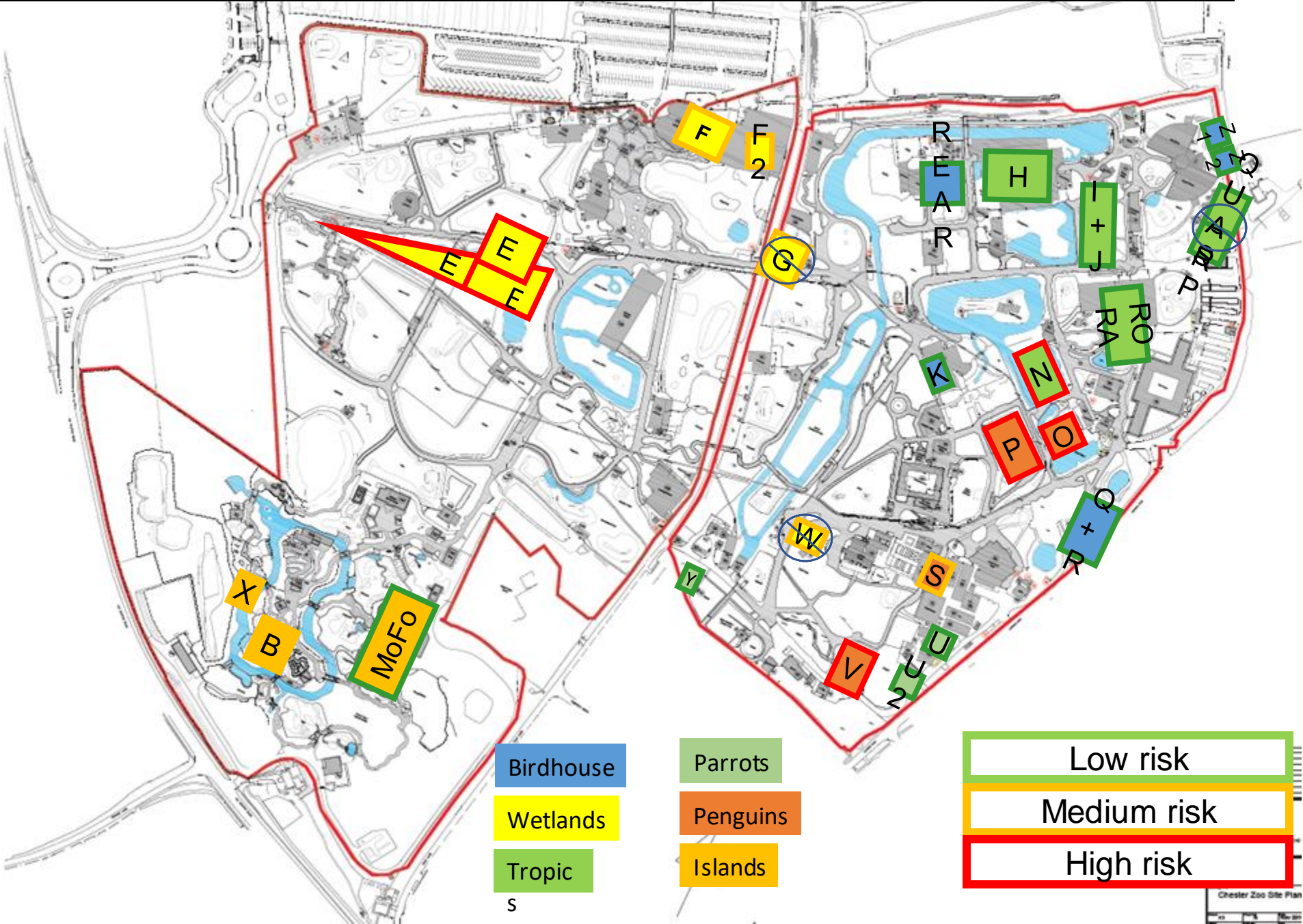
Proposed avian epidemiological units vs teams

Legend:
- Birdhouse (blue)
- Wetlands (yellow)
- Tropics (green)
- Parrots (light green)
- Penguins (orange)
- Islands (gold)
- Low risk (green border)
- Medium risk (orange border)
- High risk (red border)

Group Activity 1

With your Group

o Using the information you have gathered individually and with reference to your trade/ translocation pathways, review critical control points and work together in your group to develop a risk management option evaluation.

Pathway: Live bird trade
Hazard: High Path Avian Influenza

Environment Factors influencing transmission	Agent Factors influencing negative consequences to host	Host Factors influencing susceptibility to disease
Wild Migrating flocks Multispecies mixing	Mutation ability	Species difference in carrier VS clinical disease

Risk Management Option Evaluation

Table (add table number): Risk management option evaluation
for (Disease Hazard) to (Population of Interest) High Path Avian
Influenza

CCP#	Mitigation Options	Effectiveness	Feasibility	Explanation (include any relevant sources of information)	Recommendation (Y/N)
4 - Bird Market. Dead bird in cage in market.	Rapid removal of carcasses	Moderate	Low - More human resource needed	Potential to be overwhelmed with dead birds in an outbreak, with low capability to control in this situation, and many other epidemiological factors impact on zoonotic potential.	Y

Example of contingency planning to address three categories of infectious wildlife disease threat

	1. Risk analysis (DRA)	2. Passive surveillance	3. Targeted surveillance	4. Research projects	5. Wildlife Health Expertise	6. Recording incident investigations	7. Data storage and analysis (information management)	8. Communication and education	9. Biosecurity measures	10. Hygiene standards
Pathogen pollution	Identify and describe high-risk pathways for exotic disease entry and inform decisions to limit entry. Identify information gaps	Back-up to targeted surveillance and biosecurity measures	Surveys of a defined species to detect diseases or their pathogens identified as a priority by risk analysis	To understand risk pathways for anthropogenic introduction and spread of wildlife pathogens	Risk analyses and surveillance, disease intelligence and biosecurity measures	Morbidity and mortality incidents detected by scanning surveillance	Provide records of surveillance information	Communicate disease intelligence to wildlife users and managers	Identify and mitigate the risks from animal imports, exports and movements	Critical management activity for mitigating the risk of pathogen pollution
Novel emerging diseases	Identify and describe high risk pathways, e.g. for intensification of livestock systems next to wildlife habitats	A key system for detecting novel emerging diseases	For species and at sites identified as a priority owing to the potential consequence of a disease	To understand causal factors for disease emergence	Risk analyses and surveillance, disease intelligence and biosecurity measures	Morbidity and mortality incidents detected by scanning surveillance	Provide records of surveillance information, analyse research project data	To facilitate scanning surveillance networks by providing feedback on incidents	Not applicable	Not applicable
Endemic diseases	Identify and describe high-risk pathways of endemic disease spread and inform decisions to limit further spread. Identify information gaps	To gather baseline incident data	For species considered to be at risk of significant consequences from an endemic disease	To fill knowledge gaps identified through the risk analysis	Risk analyses and surveillance, disease intelligence and biosecurity measures.	Morbidity and mortality incidents detected by scanning surveillance	Identifying trends in disease incidence and risk factors for disease occurrence	To support the scanning surveillance networks by providing feedback on incidents	Identify and mitigate the risks from animal movements	To limit the prevalence of disease (e.g. in captive programmes)

Key: Colour codes to illustrate the priority of each component relative to other components within a wildlife disease threat category

Priority category	Highest	High	Medium	Lowest	Not applicable

IUCN · SSC · CONSERVATION PLANNING SPECIALIST GROUP

Group Activity 2

Uncertainty Vs Confidence
Wit h your Group

For <u>one</u> of your specified hazards (we would suggest the one you have decided has the highest priority):

Take one hazard from your analysed supply chain pathway and categorize the supporting evidence as either data, expert judgment, or an assumption. Assess the magnitude of uncertainty surrounding the supporting evidence and categorize it as a model or parameter uncertainty amenable to research, or deep uncertainty that cannot be reduced by research. Develop a list of prioritized research action steps to reduce uncertainty where possible. Then consider how communication could further reduce uncertainty in the system